

Y-126

**THE
WHITMAN
& BARNES
MANUFACTURING
COMPANY**

**CATALOG
No 92**



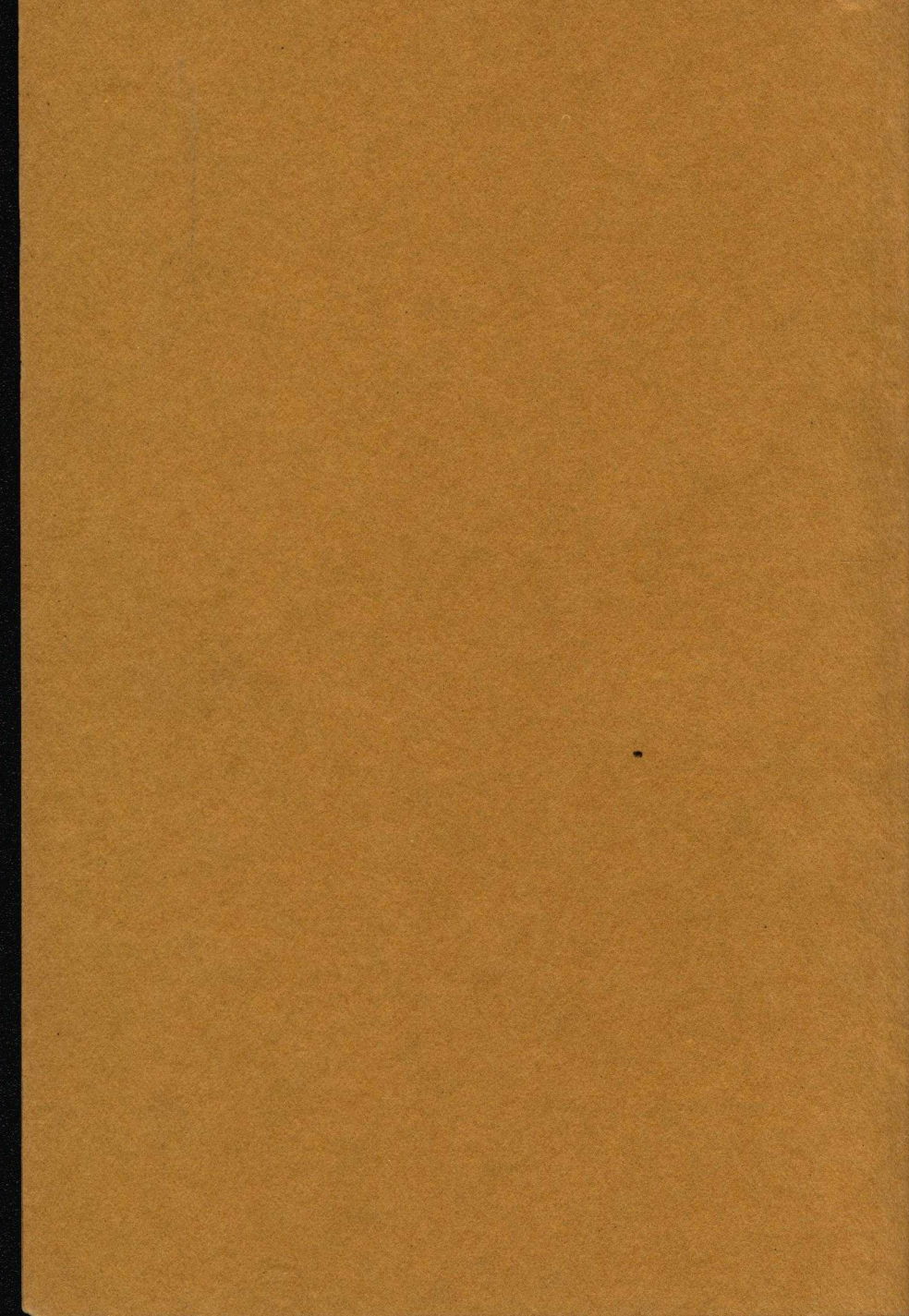
**TWIST DRILLS
and REAMERS**

AKRON, OHIO, U. S. A.

**KILMER & SONS CO.,
FIRST & MONROE
SPOKANE, -- WASH.**

KILMER & SONS CO.,
FIRST & MONROE
SPOKANE, -- WASH.

ANACONDA COPPER MINING Co.
ROCK DRILL SALVAGE AND
EFFICIENCY DEPARTMENT



The
Whitman & Barnes
Manufacturing Co.

ESTABLISHED 1854

MANUFACTURERS OF
Carbon and High Speed
TWIST DRILLS
and **REAMERS**

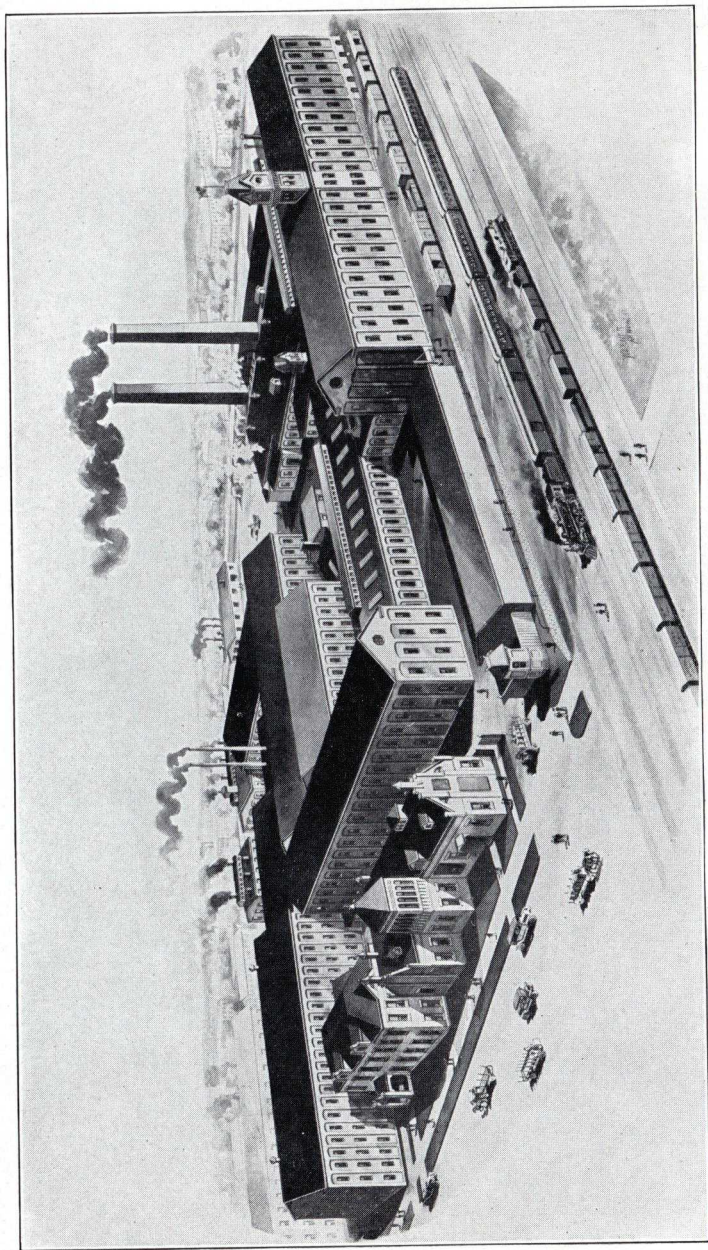


Catalog No. 92

(Revised Edition)

JANUARY, 1925

GENERAL OFFICES AND FACTORY
AKRON, OHIO, U. S. A.
NEW YORK STORE: 99 CHAMBERS STREET
CHICAGO STORE: 565 WEST WASHINGTON STREET



FACTORY AT AKRON, OHIO

W&B

Established
Whitman & Barnes
1854

W&B

SERVICE

OUR interest continues with our Twist Drills and Reamers when they pass into your hands. For this reason we maintain a Mechanical Service Department, composed of men of wide practical shop experience, to co-operate with you in solving any drilling and reaming problems and to help you in every way to secure maximum production. The co-operation of this Department is at your disposal without obligation and is part of the *Service* given by this Company to its customers.

The desire to produce only the finest tools, together with seventy-one years of manufacturing experience, enables us to offer Twist Drills and Reamers of the highest quality in the various types listed in this, our Catalogue No. 92, which supersedes all former editions.

The Whitman & Barnes Mfg. Co.

GENERAL OFFICES

AKRON, OHIO

W&B

Established 1854
Whitman & Barnes

W&B

**KILMER & SONS CO.,
FIRST & MONROE
SPOKANE, -- WASH.**

HERCULES
PAT'D. 11-26-18.



MADE IN U.S.A.

W&B

Established 1854
Whitman & Barnes

W&B

"Hercules" High Speed Drills

PATENTED NOV. 26, 1918



No. 550

Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper
$\frac{3}{8}$	\$1.50	$7\frac{3}{8}$	$4\frac{1}{8}$	No. 2	$\frac{29}{32}$	\$ 5.15	$12\frac{7}{16}$	$6\frac{1}{2}$	No. 3
$\frac{5}{16}$	1.65	$7\frac{3}{8}$	$4\frac{1}{4}$		$\frac{29}{32}$	5.50	$12\frac{9}{16}$	$6\frac{5}{8}$	
$\frac{3}{4}$	1.65	$7\frac{3}{8}$	$4\frac{1}{4}$		$\frac{15}{16}$	5.50	$12\frac{9}{16}$	$6\frac{5}{8}$	
$\frac{7}{16}$	1.75	$7\frac{3}{8}$	$4\frac{1}{4}$		$\frac{11}{16}$	5.90	$12\frac{11}{16}$	$6\frac{3}{4}$	
$\frac{1}{2}$	1.75	$7\frac{3}{8}$	$4\frac{1}{4}$		$\frac{3}{4}$	5.90	$12\frac{11}{16}$	$6\frac{3}{4}$	
$\frac{9}{16}$	1.90	$7\frac{5}{8}$	$4\frac{1}{2}$		$\frac{13}{16}$				
$\frac{5}{8}$	1.90	$7\frac{5}{8}$	$4\frac{1}{2}$		$\frac{11}{8}$				
$\frac{11}{16}$	2.00	$7\frac{7}{8}$	$4\frac{3}{4}$		$\frac{13}{8}$	6.25	$11\frac{3}{4}$	$6\frac{7}{8}$	No. 4
$\frac{3}{4}$	2.00	$7\frac{7}{8}$	$4\frac{3}{4}$		$\frac{11}{4}$	6.25	$11\frac{3}{4}$	$6\frac{7}{8}$	
$\frac{13}{16}$	2.15	$8\frac{1}{8}$	5		$\frac{1}{2}$	6.75	$11\frac{7}{8}$	7	
$\frac{7}{8}$	2.15	$8\frac{1}{8}$	5		$\frac{3}{4}$	6.75	$11\frac{7}{8}$	7	
$\frac{15}{16}$	2.25	$8\frac{3}{8}$	$5\frac{1}{4}$		$\frac{13}{16}$	7.25	12	$7\frac{1}{8}$	
$\frac{1}{2}$	2.25	$8\frac{3}{8}$	$5\frac{1}{4}$	$\frac{11}{8}$	7.25	12	$7\frac{1}{8}$		
$\frac{11}{16}$	2.40	$10\frac{1}{16}$	$5\frac{1}{8}$	$\frac{3}{4}$	7.75	$12\frac{1}{4}$	$7\frac{3}{8}$		
$\frac{9}{16}$	2.40	$10\frac{1}{16}$	$5\frac{1}{8}$	$\frac{11}{8}$	7.75	$12\frac{1}{4}$	$7\frac{3}{8}$		
$\frac{13}{16}$	2.50	$10\frac{3}{16}$	$5\frac{3}{8}$	$\frac{3}{2}$	8.25	$14\frac{7}{8}$	$7\frac{5}{8}$		
$\frac{3}{4}$	2.50	$10\frac{3}{16}$	$5\frac{3}{8}$	$\frac{11}{8}$	8.25	$14\frac{7}{8}$	$7\frac{5}{8}$		
$\frac{7}{8}$	2.75	$10\frac{9}{16}$	$5\frac{3}{8}$	$\frac{13}{8}$	8.90	15	$7\frac{3}{4}$		
$\frac{15}{16}$	2.75	$10\frac{9}{16}$	$5\frac{3}{8}$	$\frac{3}{2}$	8.90	15	$7\frac{3}{4}$		
$\frac{1}{2}$	3.00	$9\frac{5}{8}$	$5\frac{3}{4}$	$\frac{11}{4}$	9.50	$15\frac{1}{8}$	$7\frac{7}{8}$		
$\frac{11}{16}$	3.00	$9\frac{5}{8}$	$5\frac{3}{4}$	$\frac{3}{2}$	9.50	$15\frac{1}{8}$	$7\frac{7}{8}$		
$\frac{9}{16}$	3.25	$9\frac{7}{8}$	6	$\frac{11}{4}$	10.15	$15\frac{1}{4}$	8		
$\frac{13}{16}$	3.25	$9\frac{7}{8}$	6	$\frac{3}{2}$	10.15	$15\frac{1}{4}$	8		
$\frac{3}{4}$	3.50	$10\frac{1}{8}$	$6\frac{1}{4}$	$\frac{11}{4}$	10.75	$15\frac{5}{8}$	$8\frac{3}{8}$		
$\frac{7}{8}$	3.50	$10\frac{1}{8}$	$6\frac{1}{4}$	$\frac{3}{2}$	10.75	$15\frac{5}{8}$	$8\frac{3}{8}$		
$\frac{15}{16}$	3.75	$10\frac{1}{4}$	$6\frac{3}{8}$	$\frac{11}{4}$	11.50	$16\frac{1}{4}$	9		
$\frac{1}{2}$	3.75	$10\frac{1}{4}$	$6\frac{3}{8}$	$\frac{3}{2}$	11.50	$16\frac{1}{4}$	9		
$\frac{9}{16}$	3.75	$10\frac{1}{4}$	$6\frac{3}{8}$	$\frac{11}{4}$	12.25	$16\frac{3}{8}$	$9\frac{1}{8}$		
$\frac{13}{16}$	4.00	$12\frac{3}{16}$	$6\frac{3}{8}$	$\frac{3}{2}$	12.25	$16\frac{3}{8}$	$9\frac{1}{8}$		
$\frac{3}{4}$	4.00	$12\frac{3}{16}$	$6\frac{3}{8}$	$\frac{11}{4}$	13.00	$16\frac{1}{2}$	$9\frac{1}{4}$		
$\frac{7}{8}$	4.40	$12\frac{5}{16}$	$6\frac{3}{8}$	$\frac{3}{2}$	13.00	$16\frac{1}{2}$	$9\frac{1}{4}$		
$\frac{15}{16}$	4.40	$12\frac{5}{16}$	$6\frac{3}{8}$	$\frac{11}{4}$	13.75	$16\frac{3}{8}$	$9\frac{3}{8}$		
$\frac{1}{2}$	4.75	$12\frac{7}{16}$	$6\frac{1}{2}$	$\frac{3}{2}$	13.75	$16\frac{3}{8}$	$9\frac{3}{8}$		
$\frac{9}{16}$	4.75	$12\frac{7}{16}$	$6\frac{1}{2}$	$\frac{11}{4}$					
$\frac{13}{16}$	5.15	$12\frac{7}{16}$	$6\frac{1}{2}$	$\frac{3}{2}$					

Continued on next page

Variation in length over all caused by collar on shank.

USE "W & B" SOCKETS AND SLEEVES

KILMER & SONS CO.,
FIRST & MONROE
SPOKANE, - - WASH.

"Hercules" High Speed Drills

PATENTED NOV. 26, 1918



No. 550

Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper
1 ²⁵ / ₆₄	\$14.65	17 ¹⁵ / ₁₆	9	No. 5	1 ⁵⁹ / ₆₄	\$32.50	19 ³ / ₄	10 ³ / ₄	No. 5
1 ¹³ / ₃₂	14.65	17 ¹⁵ / ₁₆	9		1 ¹⁵ / ₁₆	32.50	19 ³ / ₄	10 ³ / ₄	
1 ²⁷ / ₆₄	15.50	17 ¹⁵ / ₁₆	9		1 ⁶¹ / ₆₄	33.75	19 ³ / ₄	10 ³ / ₄	
1 ⁷ / ₁₆	15.50	17 ¹⁵ / ₁₆	9		1 ³¹ / ₃₂	33.75	19 ³ / ₄	10 ³ / ₄	
1 ²⁹ / ₆₄	16.40	18 ¹ / ₁₆	9 ¹ / ₈		1 ⁶³ / ₆₄	35.00	19 ³ / ₄	10 ³ / ₄	
1 ¹⁵ / ₃₂	16.40	18 ¹ / ₁₆	9 ¹ / ₈		2	35.00	19 ³ / ₄	10 ³ / ₄	
1 ³¹ / ₆₄	17.25	18 ³ / ₁₆	9 ¹ / ₄		2 ¹ / ₆₄	36.25	19 ⁵ / ₈	10 ¹ / ₈	
1 ¹ / ₂	17.25	18 ³ / ₁₆	9 ¹ / ₄		2 ¹ / ₃₂	36.25	19 ⁵ / ₈	10 ¹ / ₈	
1 ³³ / ₆₄	18.15	18 ⁵ / ₁₆	9 ³ / ₈		2 ³ / ₆₄	37.50	19 ⁵ / ₈	10 ¹ / ₈	
1 ¹⁷ / ₃₂	18.15	18 ⁵ / ₁₆	9 ³ / ₈		2 ¹ / ₁₆	37.50	19 ⁵ / ₈	10 ¹ / ₈	
1 ³⁵ / ₆₄	19.00	18 ⁷ / ₁₆	9 ¹ / ₂		2 ⁵ / ₆₄	38.75	19 ⁵ / ₈	10 ¹ / ₈	
1 ⁹ / ₁₆	19.00	18 ⁷ / ₁₆	9 ¹ / ₂		2 ³ / ₃₂	38.75	19 ⁵ / ₈	10 ¹ / ₈	
1 ³⁷ / ₆₄	20.00	18 ⁹ / ₁₆	9 ⁵ / ₈		2 ⁷ / ₆₄	40.00	19 ⁵ / ₈	10 ¹ / ₈	
1 ¹⁹ / ₃₂	20.00	18 ⁹ / ₁₆	9 ⁵ / ₈		2 ¹ / ₈	40.00	19 ⁵ / ₈	10 ¹ / ₈	
1 ³⁹ / ₆₄	21.00	18 ¹¹ / ₁₆	9 ³ / ₄		2 ⁹ / ₆₄	41.25	19 ⁵ / ₈	10 ¹ / ₈	
1 ¹ / ₂	21.00	18 ¹¹ / ₁₆	9 ³ / ₄		2 ⁵ / ₃₂	41.25	19 ⁵ / ₈	10 ¹ / ₈	
1 ⁴¹ / ₆₄	22.00	18 ¹³ / ₁₆	9 ⁷ / ₈		2 ¹¹ / ₆₄	42.50	19 ⁵ / ₈	10 ¹ / ₈	
1 ²¹ / ₃₂	22.00	18 ¹³ / ₁₆	9 ⁷ / ₈		2 ³ / ₁₆	42.50	19 ⁵ / ₈	10 ¹ / ₈	
1 ⁴³ / ₆₄	23.00	18 ¹⁵ / ₁₆	10		2 ¹³ / ₆₄	43.75	20 ¹ / ₈	10 ⁵ / ₈	
1 ¹¹ / ₁₆	23.00	18 ¹⁵ / ₁₆	10		2 ⁷ / ₃₂	43.75	20 ¹ / ₈	10 ⁵ / ₈	
1 ⁴⁵ / ₆₄	24.00	19 ¹ / ₁₆	10 ¹ / ₈	2 ¹⁵ / ₆₄	45.00	20 ¹ / ₈	10 ⁵ / ₈		
1 ²³ / ₃₂	24.00	19 ¹ / ₁₆	10 ¹ / ₈	2 ¹ / ₄	45.00	20 ¹ / ₈	10 ⁵ / ₈		
1 ⁴⁷ / ₆₄	25.00	19 ³ / ₁₆	10 ¹ / ₄	2 ¹⁷ / ₆₄	47.50	20 ³ / ₁₆	10 ⁵ / ₈		
1 ³ / ₄	25.00	19 ³ / ₁₆	10 ¹ / ₄	2 ⁹ / ₃₂	47.50	20 ³ / ₁₆	10 ⁵ / ₈		
1 ⁴⁹ / ₆₄	26.25	19 ⁵ / ₁₆	10 ³ / ₈	2 ¹⁹ / ₆₄	50.00	20 ³ / ₁₆	10 ⁵ / ₈		
1 ²⁵ / ₃₂	26.25	19 ⁵ / ₁₆	10 ³ / ₈	2 ⁵ / ₁₆	50.00	20 ³ / ₁₆	10 ⁵ / ₈		
1 ⁵¹ / ₆₄	27.50	19 ⁷ / ₁₆	10 ¹ / ₂	2 ²¹ / ₆₄	52.50	20 ¹ / ₂	11 ¹ / ₈		
1 ¹³ / ₁₆	27.50	19 ⁷ / ₁₆	10 ¹ / ₂	2 ¹¹ / ₃₂	52.50	20 ¹ / ₂	11 ¹ / ₈		
1 ⁵³ / ₆₄	28.75	19 ⁹ / ₁₆	10 ⁵ / ₈	2 ²³ / ₆₄	55.00	20 ¹ / ₂	11 ¹ / ₈		
1 ¹⁵ / ₃₂	28.75	19 ⁹ / ₁₆	10 ⁵ / ₈	2 ³ / ₈	55.00	20 ¹ / ₂	11 ¹ / ₈		
1 ⁵⁵ / ₆₄	30.00	19 ³ / ₄	10 ³ / ₄	2 ²⁵ / ₆₄	57.50	21 ³ / ₁₆	11 ⁵ / ₈		
1 ¹⁷ / ₁₆	30.00	19 ³ / ₄	10 ³ / ₄	2 ¹³ / ₃₂	57.50	21 ³ / ₁₆	11 ⁵ / ₈		
1 ⁵⁷ / ₆₄	31.25	19 ³ / ₄	10 ³ / ₄	2 ²⁷ / ₆₄	60.00	21 ³ / ₁₆	11 ⁵ / ₈		
1 ²⁹ / ₃₂	31.25	19 ³ / ₄	10 ³ / ₄	2 ⁷ / ₁₆	60.00	21 ³ / ₁₆	11 ⁵ / ₈		

Continued on next page

On sizes 1 ²⁵/₆₄ to 2 inches inclusive, No. 4 Taper Shank will be furnished when so ordered.

On sizes 2 ¹/₄ to 3 inches inclusive, No. 6 Taper Shank can be furnished at special prices.

Variation in length over all caused by collar on shank.

USE "W & B" SOCKETS AND SLEEVES

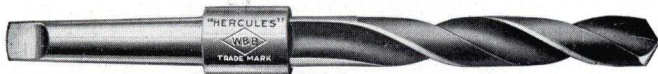
W&B

Established 1854
Whitman & Barnes

W&B

“Hercules” High Speed Drills

PATENTED NOV. 26, 1918

**No. 550**

Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper
$2\frac{29}{64}$	\$62.50	$21\frac{11}{16}$	$12\frac{1}{8}$	No. 5	$2\frac{23}{32}$	\$82.50	$23\frac{3}{16}$	$13\frac{5}{8}$	No. 5
$2\frac{15}{32}$	62.50	$21\frac{11}{16}$	$12\frac{1}{8}$		$2\frac{3}{8}$	85.00	$23\frac{3}{16}$	$13\frac{5}{8}$	
$2\frac{31}{64}$	65.00	$21\frac{11}{16}$	$12\frac{1}{8}$		$2\frac{3}{4}$	87.50	$23\frac{3}{16}$	$13\frac{5}{8}$	
$2\frac{1}{2}$	65.00	$21\frac{11}{16}$	$12\frac{1}{8}$		$2\frac{3}{2}$	90.00	$23\frac{3}{16}$	$13\frac{5}{8}$	
$2\frac{17}{32}$	67.50	$21\frac{11}{16}$	$12\frac{3}{8}$		$2\frac{13}{16}$	92.50	$23\frac{3}{16}$	$14\frac{1}{8}$	
$2\frac{9}{16}$	70.00	$21\frac{11}{16}$	$12\frac{3}{8}$		$2\frac{27}{32}$	95.00	$23\frac{3}{16}$	$14\frac{1}{8}$	
$2\frac{19}{32}$	72.50	$22\frac{3}{16}$	$12\frac{5}{8}$		$2\frac{7}{8}$	97.50	$23\frac{3}{16}$	$14\frac{1}{8}$	
$2\frac{5}{8}$	75.00	$22\frac{3}{16}$	$12\frac{5}{8}$		$2\frac{29}{32}$	100.00	$23\frac{3}{16}$	$14\frac{1}{8}$	
$2\frac{21}{32}$	77.50	$22\frac{11}{16}$	$13\frac{1}{8}$		$2\frac{15}{16}$	102.50	$24\frac{1}{16}$	$15\frac{1}{8}$	
$2\frac{11}{16}$	80.00	$22\frac{11}{16}$	$13\frac{1}{8}$		$2\frac{31}{32}$	105.00	$24\frac{1}{16}$	$15\frac{1}{8}$	
					3				

Drills $\frac{37}{64}$ to $\frac{21}{32}$ have shoulder $1\frac{5}{8}$ long
 “ $\frac{51}{64}$ “ “ “ “ $1\frac{7}{8}$ “
 “ $\frac{64}{64}$ “ “ “ “ “ $2\frac{5}{16}$ “
 “ $1\frac{7}{4}$ “ $1\frac{3}{8}$ “ “ “ $2\frac{5}{8}$ “
 “ $1\frac{25}{64}$ “ $2\frac{1}{8}$ “ “ “ $2\frac{5}{8}$ “
 “ $2\frac{1}{4}$ “ 3 “ “ “ $3\frac{1}{8}$ “

Sixty-fourth sizes $2\frac{1}{2}$ inches and larger take list of next larger listed size.

On sizes $2\frac{1}{4}$ to 3 inches inclusive, No. 6 Taper Shank can be furnished at special prices.

Variation in length over all caused by collar on shank.

“Hercules” Short Body Car Drills**No. 552 High Speed**

Diameter Inches	Price Each	Length Over All Inches	Length of Twist Inches	Shank Taper
$\frac{11}{16}$	\$3.00	8	$3\frac{1}{2}$	3
$\frac{13}{16}$	4.00	$8\frac{1}{2}$	4	3
$\frac{15}{16}$	5.50	$8\frac{1}{2}$	4	3

USE “W & B” SOCKETS AND SLEEVES

Taper Shank Twist Drills



No. 102 Carbon Steel

No. 402 "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper
	Carbon Steel	High Speed					Carbon Steel	High Speed			
1/16	\$0.45	\$0.90	4 3/8	1 1/4	No. 1	3 7/8	\$1.50	\$2.40	8 1/2	4 7/8	No. 2
5/64	.45	.90	4 1/2	1 3/8		3 1/4	1.50	2.40	8 1/2	4 7/8	
3/32	.45	.90	4 1/2	1 3/8		3 3/8	1.60	2.50	8 3/4	5 1/16	
7/64	.45	.90	4 3/8	1 9/16		3 5/8	1.60	2.50	8 3/4	5 1/16	
1/8	.45	.90	5 1/8	2 1/8		4 1/8	1.70	2.75	9	5 5/16	
9/64	.45	.90	5 1/4	2 1/4		4 1/4	1.70	2.75	9	5 5/16	
5/32	.45	.90	5 3/8	2 3/8		4 3/8	1.80	3.00	9 1/4	5 1/2	
3/16	.50	.90	5 3/4	2 1/2		4 3/4	1.80	3.00	9 1/4	5 1/2	
1/4	.50	.90	5 3/4	2 1/2		4 5/4	1.90	3.25	9 1/2	5 3/4	
5/16	.55	1.00	5 7/8	2 5/8		4 7/8	1.90	3.25	9 1/2	5 3/4	
3/8	.55	1.00	5 7/8	2 5/8		4 7/8	2.00	3.50	9 3/4	6	
7/16	.60	1.10	6 1/8	3		4 3/4	2.00	3.50	9 3/4	6	
1/2	.60	1.10	6 1/8	3		4 9/8	2.10	3.75	9 7/8	6 3/16	
5/8	.65	1.20	6 1/4	3 1/16		4 5/4	2.10	3.75	9 7/8	6 3/16	
3/4	.65	1.20	6 1/4	3 1/16		4 5/4	2.20	4.00	10	6 5/16	
7/8	.70	1.30	6 3/8	3 3/8		4 5/4	2.20	4.00	10	6 5/16	
1	.70	1.30	6 3/8	3 3/8		4 5/4	2.40	4.40	10 1/4	6 5/16	
1 1/16	.75	1.40	6 1/2	3 5/8		4 5/4	2.40	4.40	10 1/4	6 5/16	
1 1/8	.75	1.40	6 1/2	3 5/8		4 5/4	2.60	4.75	10 1/2	6 5/16	
1 1/4	.80	1.50	6 3/4	3 9/16		4 5/4	2.60	4.75	10 1/2	6 5/16	
1 1/2	.80	1.50	6 3/4	3 9/16		4 5/4	2.80	5.15	10 5/8	6 5/16	
1 3/4	.90	1.65	7	3 11/16		4 5/4	2.80	5.15	10 5/8	6 5/16	
1 7/8	.90	1.65	7	3 11/16		4 5/4	3.00	5.50	10 3/4	6 1/4	
2	1.00	1.75	7 1/4	4 1/16		4 5/4	3.00	5.50	10 3/4	6 1/4	
2 1/16	1.00	1.75	7 1/4	4 1/16		4 5/4	3.25	5.90	10 7/8	6 3/8	
2 1/8	1.10	1.90	7 1/2	4 3/8		4 5/4	3.25	5.90	10 7/8	6 3/8	
2 1/4	1.10	1.90	7 1/2	4 3/8		4 5/4	3.50	6.25	11	6 1/2	
2 3/8	1.20	2.00	7 3/4	4 5/8		4 5/4	3.50	6.25	11	6 1/2	
2 1/2	1.20	2.00	7 3/4	4 5/8		4 5/4	3.50	6.25	11	6 1/2	
2 5/8	1.30	2.15	8	4 7/8		4 5/4	3.75	6.75	11 1/8	6 5/8	
2 3/4	1.30	2.15	8	4 7/8	4 5/4	3.75	6.75	11 1/8	6 5/8		
2 7/8	1.40	2.25	8 1/4	5 1/8	4 5/4	4.00	7.25	11 1/4	6 3/4		
3	1.40	2.25	8 1/4	5 1/8	4 5/4	4.00	7.25	11 1/4	6 3/4		
3 1/16					4 5/4	4.25	7.75	11 1/2	7		
3 1/8					4 5/4	4.25	7.75	11 1/2	7		

Continued on next page

USE "W & B" SOCKETS AND SLEEVES

Taper Shank Twist Drills



No. 102 Carbon Steel

No. 402 "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper
	Carbon Steel	High Speed					Carbon Steel	High Speed			
1 ⁷ / ₁₆	\$4.50	\$8.25	11 ³ / ₄	7 ¹ / ₄	No. 3	1 ³ / ₁₆	\$10.50	\$21.00	15 ¹ / ₂	9 ⁷ / ₈	No. 4
1 ¹ / ₈	4.50	8.25	11 ³ / ₄	7 ¹ / ₄		1 ¹ / ₈	10.50	21.00	15 ¹ / ₂	9 ⁷ / ₈	
1 ¹ / ₄	4.75	8.90	11 ⁷ / ₈	7 ³ / ₈		1 ¹ / ₄	11.00	22.00	15 ⁵ / ₈	10	
1 ⁵ / ₁₆	4.75	8.90	11 ⁷ / ₈	7 ³ / ₈		1 ¹ / ₂	11.50	23.00	15 ³ / ₄	10 ¹ / ₈	
1 ³ / ₂	5.00	9.50	12	7 ¹ / ₂		1 ³ / ₂	11.50	23.00	15 ³ / ₄	10 ¹ / ₈	
1 ¹ / ₄	5.00	9.50	12	7 ¹ / ₂		1 ¹ / ₁₆	11.50	23.00	15 ³ / ₄	10 ¹ / ₈	
1 ¹ / ₁₆	5.25	10.15	12 ³ / ₈	7 ⁵ / ₈		1 ¹ / ₈	12.00	24.00	15 ⁷ / ₈	10 ¹ / ₄	
1 ¹ / ₈	5.25	10.15	12 ¹ / ₈	7 ⁵ / ₈		1 ³ / ₁₆	12.00	24.00	15 ⁷ / ₈	10 ¹ / ₄	
1 ³ / ₂	5.50	10.75	12 ¹ / ₂	8		1 ¹ / ₄	12.50	25.00	16	10 ³ / ₄	
1 ¹ / ₄	5.50	10.75	12 ¹ / ₂	8		1 ¹ / ₄	12.50	25.00	16	10 ³ / ₄	
1 ¹ / ₁₆	5.75	11.50	14 ¹ / ₈	8 ¹ / ₂		1 ¹ / ₈	13.25	26.25	16 ¹ / ₈	10 ³ / ₄	
1 ³ / ₂	5.75	11.50	14 ¹ / ₈	8 ¹ / ₂		1 ³ / ₁₆	13.25	26.25	16 ¹ / ₈	10 ³ / ₄	
1 ¹ / ₈	6.00	12.25	14 ¹ / ₄	8 ⁵ / ₈		1 ¹ / ₄	14.00	27.50	16 ¹ / ₄	10 ³ / ₈	
1 ¹ / ₁₆	6.00	12.25	14 ¹ / ₄	8 ⁵ / ₈		1 ¹ / ₁₆	14.00	27.50	16 ¹ / ₄	10 ¹ / ₂	
1 ⁵ / ₁₆	6.00	12.25	14 ¹ / ₄	8 ⁵ / ₈	1 ³ / ₁₆	14.75	28.75	16 ³ / ₈	10 ¹ / ₂		
1 ¹ / ₄	6.25	13.00	14 ³ / ₈	8 ³ / ₄	1 ¹ / ₄	14.75	28.75	16 ³ / ₈	10 ¹ / ₂		
1 ¹ / ₈	6.25	13.00	14 ³ / ₈	8 ³ / ₄	1 ³ / ₁₆	15.50	30.00	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ³ / ₂	6.50	13.75	14 ¹ / ₂	8 ⁷ / ₈	1 ¹ / ₈	15.50	30.00	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ¹ / ₁₆	6.50	13.75	14 ¹ / ₂	8 ⁷ / ₈	1 ⁵ / ₁₆	16.25	31.25	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ³ / ₈	7.00	14.65	14 ⁵ / ₈	9	1 ¹ / ₄	16.25	31.25	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ² / ₅	7.00	14.65	14 ⁵ / ₈	9	1 ³ / ₁₆	17.00	32.50	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ¹ / ₈	7.50	15.50	14 ³ / ₄	9 ¹ / ₈	1 ¹ / ₈	17.00	32.50	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ¹ / ₁₆	7.50	15.50	14 ³ / ₄	9 ¹ / ₈	1 ¹ / ₁₆	17.75	33.75	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ³ / ₂	8.00	16.40	14 ⁷ / ₈	9 ¹ / ₄	1 ¹ / ₈	17.75	33.75	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ¹ / ₈	8.00	16.40	14 ⁷ / ₈	9 ¹ / ₄	1 ³ / ₁₆	18.50	35.00	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ¹ / ₁₆	8.50	17.25	15	9 ³ / ₈	1 ¹ / ₁₆	18.50	35.00	16 ¹ / ₂	10 ⁹ / ₁₆		
1 ¹ / ₂	8.50	17.25	15	9 ³ / ₈	2						
1 ³ / ₃₂	9.00	18.15	15 ¹ / ₈	9 ¹ / ₂	2 ¹ / ₁₆	19.25	36.25	16 ¹ / ₂	9 ¹ / ₂		
1 ¹ / ₄	9.00	18.15	15 ¹ / ₈	9 ¹ / ₂	2 ¹ / ₃₂	19.25	36.25	16 ¹ / ₂	9 ¹ / ₂		
1 ³ / ₂	9.50	19.00	15 ¹ / ₄	9 ⁵ / ₈	2 ³ / ₁₆	20.00	37.50	17	10 ¹ / ₁₆		
1 ¹ / ₈	9.50	19.00	15 ¹ / ₄	9 ⁵ / ₈	2 ¹ / ₁₆	20.00	37.50	17	10 ¹ / ₁₆		
1 ³ / ₁₆	9.50	19.00	15 ¹ / ₄	9 ⁵ / ₈	2 ⁵ / ₁₆	20.00	37.50	17	10 ¹ / ₁₆		
1 ¹ / ₄	10.00	20.00	15 ³ / ₈	9 ³ / ₄	2 ⁵ / ₁₆	20.75	38.75	17	10 ¹ / ₁₆		
1 ³ / ₂	10.00	20.00	15 ³ / ₈	9 ³ / ₄	2 ³ / ₃₂	20.75	38.75	17	10 ¹ / ₁₆		

Continued on next page

USE "W & B" SOCKETS AND SLEEVES

Taper Shank Twist Drills



No. 102 Carbon Steel
 No. 402 "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Taper Shank	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Taper Shank	
	Carbon Steel	High Speed					Carbon Steel	High Speed				
2 7/64	\$21.50	\$40.00	17	10 1/16	No. 5	2 45/64	\$37.00	\$82.50	20 1/2	13 1/4	No. 5	
2 1/8	21.50	40.00	17	10 1/16		2 23/32	37.00	82.50	20 1/2	13 1/4		
2 9/32	22.25	41.25	17	10 1/16		2 47/64	38.00	85.00	20 1/2	13 1/4		
2 5/16	22.25	41.25	17	10 1/16		2 3/4	38.00	85.00	20 1/2	13 1/4		
2 11/64	23.00	42.50	17	10 1/16		2 49/64	39.25	87.50	20 1/2	13 1/4		
2 3/8	23.00	42.50	17	10 1/16		2 63/64	39.25	87.50	20 1/2	13 1/4		
2 13/64	23.75	43.75	17 1/2	10 9/16		2 31/32	40.50	90.00	20 1/2	13 1/4		
2 7/16	23.75	43.75	17 1/2	10 9/16		2 1/2	40.50	90.00	20 1/2	13 1/4		
2 15/64	24.50	45.00	17 1/2	10 9/16		2 55/64	41.75	92.50	21	13 3/4		
2 1/4	24.50	45.00	17 1/2	10 9/16		2 27/32	41.75	92.50	21	13 3/4		
2 17/64	25.25	47.50	17 1/2	10 9/16		2 5/8	43.00	95.00	21	13 3/4		
2 3/8	25.25	47.50	17 1/2	10 9/16		2 57/64	43.00	95.00	21	13 3/4		
2 19/64	26.00	50.00	17 1/2	10 9/16		2 3/4	44.25	97.50	21	13 3/4		
2 5/16	26.00	50.00	17 1/2	10 9/16		2 61/64	44.25	97.50	21	13 3/4		
2 21/64	26.75	52.50	18	10 7/8		2 59/64	45.50	100.00	21	13 3/4		
2 3/4	26.75	52.50	18	10 7/8		2 31/32	45.50	100.00	21	13 3/4		
2 23/64	27.50	55.00	18	10 7/8		2 63/64	46.75	102.50	22	14 5/8		
2 5/8	27.50	55.00	18	10 7/8		2 3/4	46.75	102.50	22	14 5/8		
2 25/64	28.25	57.50	18 1/2	11 3/8		2 33/64	48.00	105.00	22	14 5/8		
2 13/16	28.25	57.50	18 1/2	11 3/8		2 63/64	48.00	105.00	22	14 5/8		
2 27/64	29.00	60.00	18 1/2	11 3/8		No. 6	3 1/16	52.00	112.50	22		12 1/2
2 7/16	29.00	60.00	18 1/2	11 3/8			3 1/8	56.00	120.00	22		12 1/2
2 29/64	29.75	62.50	19	11 7/8			3 3/16	60.00	127.50	22		12 1/2
2 15/16	29.75	62.50	19	11 7/8			3 1/4	65.00	135.00	23		13 1/2
2 31/64	30.50	65.00	19	11 7/8			3 5/16	70.00	142.50	23		13 1/2
2 3/4	30.50	65.00	19	11 7/8			3 3/8	75.00	150.00	23		13 1/2
2 33/64	31.25	67.50	19 1/4	12 1/8			3 7/16	80.00	157.50	23		13 1/2
2 17/16	31.25	67.50	19 1/4	12 1/8			3 1/2	85.00	165.00	24		14 3/8
2 35/64	32.00	70.00	19 1/4	12 1/8			3 9/16	91.00	172.50	24		14 3/8
2 3/2	32.00	70.00	19 1/4	12 1/8			3 5/8	98.00	180.00	24		14 3/8
2 37/64	33.00	72.50	19 1/2	12 3/8			3 11/8	105.00	187.50	24		14 3/8
2 19/16	33.00	72.50	19 1/2	12 3/8			3 3/4	112.00	195.00	24		14 3/8
2 39/64	34.00	75.00	19 1/2	12 3/8	3 7/8		119.00	202.50	24	14 3/8		
2 5/8	34.00	75.00	19 1/2	12 3/8	3 15/8		126.00	210.00	24	14 3/8		
2 41/64	35.00	77.50	20	12 7/8	3 15/16		133.00	217.50	24	14 3/8		
2 21/16	35.00	77.50	20	12 7/8	No. 7		4	140.00	225.00	25	15 1/8	
2 43/64	36.00	80.00	20	12 7/8								
2 11/16	36.00	80.00	20	12 7/8								

Continued on next page

Thirty-second sizes not listed take list midway between sixteenth sizes.
 Sixty-fourth sizes furnished at list of the next larger size.

USE "W & B" SOCKETS AND SLEEVES

Taper Shank Twist Drills**No. 102 Carbon Steel**

Diameter Inches	Price Each Carbon Steel	Length Over All Ins.	Length of Twist Ins.	Shank Taper
$4\frac{1}{16}$	\$147.50	25	$15\frac{1}{8}$	} No. 6
$4\frac{1}{8}$	155.00	25	$15\frac{1}{8}$	
$4\frac{3}{16}$	162.00	25	$15\frac{3}{16}$	
$4\frac{1}{4}$	170.00	25	$15\frac{3}{16}$	
$4\frac{5}{16}$	177.50	25	$15\frac{3}{16}$	
$4\frac{3}{8}$	185.00	25	$15\frac{1}{4}$	
$4\frac{7}{16}$	192.50	25	$15\frac{1}{4}$	
$4\frac{1}{2}$	200.00	26	$16\frac{1}{8}$	
$4\frac{9}{16}$	207.50	26	$16\frac{1}{8}$	
$4\frac{5}{8}$	215.00	26	$16\frac{1}{8}$	
$4\frac{11}{16}$	222.50	26	$16\frac{3}{16}$	
$4\frac{3}{4}$	230.00	26	$16\frac{3}{16}$	
$4\frac{13}{16}$	237.50	26	$16\frac{3}{16}$	
$4\frac{7}{8}$	245.00	26	$16\frac{1}{4}$	
$4\frac{15}{16}$	252.50	26	$16\frac{1}{4}$	
5	260.00	27	$17\frac{1}{8}$	
$5\frac{1}{8}$	275.00	27	$17\frac{1}{8}$	
$5\frac{1}{4}$	290.00	27	$17\frac{3}{16}$	
$5\frac{3}{8}$	305.00	27	$17\frac{3}{16}$	
$5\frac{1}{2}$	325.00	28	18	
$5\frac{5}{8}$	340.00	28	18	
$5\frac{3}{4}$	360.00	28	18	
$5\frac{7}{8}$	380.00	28	18	
6	400.00	28	18	

Thirty-second sizes not listed take list midway between sixteenth sizes.
Sixty-fourth sizes furnished at list of the next larger size.
Will furnish No. 5 Shanks at customer's risk when so ordered.

Taper Shank Twist Drills

Shanks Larger than Regular



No. 102 Special Carbon Steel

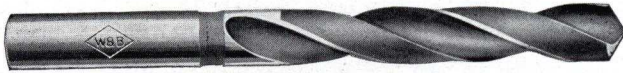
No. 402 Special, "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper
	Carbon Steel	High Speed					Carbon Steel	High Speed			
5/16	\$1.40	\$2.80	6 1/2	2 3/4	No. 2	2 7/8	\$3.10	\$5.45	10 3/8	5 3/8	No. 3
21/64	1.40	2.80	6 3/4	3		2 7/8	3.20	5.60	10 1/2	5 1/8	
1/4	1.40	2.80	6 3/4	3		2 7/8	3.20	5.60	10 1/2	5 1/8	
3/16	1.40	2.80	7	3 1/4		2 7/8	3.30	5.75	10 5/8	6 1/8	No. 4
23/64	1.40	2.80	7	3 1/4		2 7/8	3.30	5.75	10 5/8	6 1/8	
1/4	1.40	2.80	7 1/4	3 1/2		2 7/8	5.40	10.50	12	6 1/4	
1/4	1.40	2.80	7 1/4	3 1/2		2 7/8	5.40	10.50	12	6 1/4	No. 5
1/4	1.40	2.80	7 1/2	3 3/4		2 7/8	5.60	10.80	12 1/4	6 1/2	
1/4	1.40	2.80	7 1/2	3 3/4		2 7/8	5.80	11.10	12 1/2	6 3/4	
5/16	1.45	3.00	7 3/4	4		2 7/8	5.80	11.10	12 1/2	6 3/4	No. 6
1/4	1.45	3.00	7 3/4	4		2 7/8	6.00	11.55	12 3/4	7	
1/4	1.50	3.00	8	4 1/4		2 7/8	6.00	11.55	12 3/4	7	
1/4	1.50	3.00	8	4 1/4	2 7/8	6.20	12.00	13	7 1/4	No. 7	
1/4	1.60	3.20	8 1/4	4 7/16	2 7/8	6.20	12.00	13	7 1/4		
1/4	1.60	3.20	8 1/4	4 7/16	2 7/8	6.20	12.00	13	7 1/4		
1/4	1.70	3.20	8 1/2	4 7/16	2 7/8	14 1/4	13.25	25.00	16 1/2	9 1/2	No. 8
1/4	1.70	3.20	8 1/2	4 7/16	2 7/8	14 1/4	13.25	25.00	16 1/2	9 1/2	
1/4	1.70	3.20	8 1/2	4 7/16	2 7/8	14 1/4	14.00	26.25	16 1/2	9 1/2	
3/8	2.50	4.60	9 3/8	4 7/8	2 7/8	14 1/4	14.00	26.25	16 1/2	9 1/2	No. 9
3/8	2.50	4.60	9 3/8	4 7/8	2 7/8	14 1/4	14.75	27.50	16 1/2	9 1/2	
3/8	2.50	4.60	9 1/2	4 7/8	2 7/8	14 1/4	14.75	27.50	16 1/2	9 1/2	
3/8	2.50	4.60	9 1/2	4 7/8	2 7/8	14 1/4	15.50	28.75	16 1/2	9 1/2	No. 10
3/8	2.50	4.60	9 5/8	5 1/16	2 7/8	15 1/4	15.50	28.75	16 1/2	9 1/2	
3/8	2.50	4.60	9 5/8	5 1/16	2 7/8	15 1/4	16.25	30.00	16 1/2	9 1/2	
3/8	2.60	4.60	9 3/4	5 3/16	2 7/8	15 1/4	16.25	30.00	16 1/2	9 1/2	No. 11
3/8	2.60	4.60	9 3/4	5 3/16	2 7/8	15 1/4	16.25	30.00	16 1/2	9 1/2	
3/8	2.60	4.60	9 3/4	5 3/16	2 7/8	15 1/4	17.00	31.25	16 1/2	9 1/2	
3/8	2.70	5.00	9 7/8	5 5/16	2 7/8	15 1/4	17.00	31.25	16 1/2	9 1/2	No. 12
3/8	2.70	5.00	9 7/8	5 5/16	2 7/8	15 1/4	17.00	31.25	16 1/2	9 1/2	
3/8	2.70	5.00	9 7/8	5 5/16	2 7/8	15 1/4	17.75	32.50	16 1/2	9 1/2	
3/8	2.80	5.00	10	5 7/16	2 7/8	15 1/4	17.75	32.50	16 1/2	9 1/2	No. 13
3/8	2.80	5.00	10	5 7/16	2 7/8	15 1/4	17.75	32.50	16 1/2	9 1/2	
3/8	2.80	5.00	10	5 7/16	2 7/8	15 1/4	17.75	32.50	16 1/2	9 1/2	
3/8	2.90	5.00	10 1/8	5 9/16	2 7/8	15 1/4	17.75	32.50	16 1/2	9 1/2	No. 14
3/8	2.90	5.00	10 1/8	5 9/16	2 7/8	15 1/4	18.50	33.75	16 1/2	9 1/2	
3/8	2.90	5.00	10 1/8	5 9/16	2 7/8	15 1/4	18.50	33.75	16 1/2	9 1/2	
3/8	3.00	5.45	10 1/4	5 11/16	2 7/8	15 1/4	18.50	33.75	16 1/2	9 1/2	No. 15
3/8	3.00	5.45	10 1/4	5 11/16	2 7/8	15 1/4	19.25	35.00	16 1/2	9 1/2	
3/8	3.00	5.45	10 1/4	5 11/16	2 7/8	15 1/4	19.25	35.00	16 1/2	9 1/2	
3/8	3.10	5.45	10 3/8	5 13/16	2 7/8	2	19.25	35.00	16 1/2	9 1/2	

USE "W & B" SOCKETS AND SLEEVES

Straight Shank Twist Drills

Taper Length



No. 104 Carbon Steel

No. 404 "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/16	\$0.45	\$0.90	3 5/8	1 1/2	1 9/32	\$1.50	\$2.40	8 1/2	5 5/8
5/64	.45	.90	4	1 5/8	1 3/8	1.60	2.50	8 3/4	5 3/4
3/32	.45	.90	4 3/8	1 7/8	1 1/4	1.60	2.50	8 3/4	5 3/4
1/8	.45	.90	4 3/4	2 1/4	1 1/2	1.70	2.75	9	5 7/8
5/32	.45	.90	5 1/8	2 5/8	1 3/4	1.70	2.75	9	5 7/8
3/16	.45	.90	5 3/8	3	1 7/8	1.80	3.00	9 1/4	6
1/4	.45	.90	5 3/8	3	2	1.80	3.00	9 1/4	6
5/16	.50	.90	5 3/4	3 1/2	2 1/8	1.90	3.25	9 1/2	6 3/16
3/8	.50	.90	5 3/4	3 1/2	2 1/4	1.90	3.25	9 1/2	6 3/16
7/16	.55	1.00	6	4	2 3/8	2.00	3.50	9 3/4	6 3/8
1/2	.55	1.00	6	4	2 1/2	2.00	3.50	9 3/4	6 3/8
9/16	.60	1.10	6 1/8	4 1/8	2 3/4	2.10	3.75	9 7/8	6 1/2
5/8	.60	1.10	6 1/8	4 1/8	3	2.10	3.75	9 7/8	6 1/2
11/16	.65	1.20	6 1/4	4 1/8	3 1/8	2.20	4.00	10	6 5/8
3/4	.65	1.20	6 1/4	4 1/8	3 1/4	2.20	4.00	10	6 5/8
13/16	.70	1.30	6 3/8	4 1/8	3 3/8	2.40	4.40	10 1/4	6 3/4
7/8	.70	1.30	6 3/8	4 1/8	3 1/2	2.40	4.40	10 1/4	6 3/4
15/16	.75	1.40	6 1/2	4 1/4	3 5/8	2.60	4.75	10 1/2	7
1	.75	1.40	6 1/2	4 1/4	4	2.60	4.75	10 1/2	7
1 1/16	.80	1.50	6 3/4	4 1/4	4 1/8	2.80	5.15	10 5/8	7
1 1/8	.80	1.50	6 3/4	4 1/4	4 1/4	2.80	5.15	10 5/8	7
1 1/4	.90	1.65	7	4 3/8	4 3/8	3.00	5.50	10 3/4	7
1 1/2	.90	1.65	7	4 3/8	4 1/2	3.00	5.50	10 3/4	7
1 3/4	1.00	1.75	7 1/4	4 5/8	4 5/8	3.25	5.90	10 7/8	7 1/8
1 7/8	1.00	1.75	7 1/4	4 5/8	5	3.25	5.90	10 7/8	7 1/8
2	1.10	1.90	7 1/2	4 7/8	5 1/8	3.50	6.25	11	7 3/16
2 1/8	1.10	1.90	7 1/2	4 7/8	5 1/4	3.50	6.25	11	7 3/16
2 1/4	1.20	2.00	7 3/4	5	5 3/8	3.75	6.75	11 1/8	7 5/16
2 1/2	1.20	2.00	7 3/4	5	5 1/2	3.75	6.75	11 1/8	7 5/16
2 3/4	1.30	2.15	8	5 1/4	6	4.00	7.25	11 1/4	7 3/8
2 7/8	1.30	2.15	8	5 1/4	6 1/8	4.00	7.25	11 1/4	7 3/8
3	1.40	2.25	8 1/4	5 3/8	6 1/4	4.25	7.75	11 1/2	7 5/8
3 1/8	1.40	2.25	8 1/4	5 3/8	6 3/8	4.25	7.75	11 1/2	7 5/8
3 1/4	1.50	2.40	8 1/2	5 5/8	6 3/4	4.50	8.25	11 3/4	7 7/8

Continued on next page

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Straight Shank Twist Drills Taper Length



No. 104 Carbon Steel No. 404 "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1 1/8	\$4.50	\$8.25	11 3/4	7 7/8	1 21/32	\$11.00	\$22.00	15 5/8	10 1/2
1 9/16	4.75	8.90	11 7/8	8	1 43/64	11.50	23.00	15 3/4	10 5/8
1 3/8	4.75	8.90	11 7/8	8	1 11/16	11.50	23.00	15 3/4	10 5/8
1 11/16	5.00	9.50	12	8 1/8	1 5/8	12.00	24.00	15 7/8	10 3/4
1 3/4	5.00	9.50	12	8 1/8	1 23/32	12.00	24.00	15 7/8	10 3/4
1 13/16	5.25	10.15	12 1/8	8 1/8	1 47/64	12.50	25.00	16	10 7/8
1 5/8	5.25	10.15	12 1/8	8 1/8	1 3/4	12.50	25.00	16	10 7/8
1 3/2	5.50	10.75	12 1/2	8 1/2	1 49/64	13.25	26.25	16 1/8	10 1/2
1 1 1/4	5.50	10.75	12 1/2	8 1/2	1 25/32	13.25	26.25	16 1/8	10 1/2
1 1 1/4	5.75	11.50	14 1/8	9 1/8	1 31/32	14.00	27.50	16 1/4	10 1/4
1 9/16	5.75	11.50	14 1/8	9 1/8	1 13/16	14.00	27.50	16 1/4	10 1/4
1 1 1/8	6.00	12.25	14 1/4	9 1/4	1 5/8	14.75	28.75	16 3/8	10 3/8
1 5/8	6.00	12.25	14 1/4	9 1/4	1 27/32	14.75	28.75	16 3/8	10 3/8
1 21/64	6.25	13.00	14 3/8	9 3/8	1 55/64	15.50	30.00	16 1/2	10 1/2
1 1 1/4	6.25	13.00	14 3/8	9 3/8	1 7/8	15.50	30.00	16 1/2	10 1/2
1 23/64	6.50	13.75	14 1/2	9 1/2	1 57/64	16.25	31.25	16 1/2	10 1/2
1 3/8	6.50	13.75	14 1/2	9 1/2	1 29/32	16.25	31.25	16 1/2	10 1/2
1 25/64	7.00	14.65	14 5/8	9 1/2	1 59/64	17.00	32.50	16 1/2	10 1/2
1 1 1/8	7.00	14.65	14 5/8	9 1/2	1 15/16	17.00	32.50	16 1/2	10 1/2
1 27/64	7.50	15.50	14 3/4	9 5/8	1 61/64	17.75	33.75	16 1/2	10 1/2
1 1 1/4	7.50	15.50	14 3/4	9 5/8	1 33/32	17.75	33.75	16 1/2	10 1/2
1 29/64	8.00	16.40	14 7/8	9 3/4	1 63/64	18.50	35.00	16 1/2	10 1/2
1 1 1/8	8.00	16.40	14 7/8	9 3/4	2	18.50	35.00	16 1/2	10 1/2
1 31/64	8.50	17.25	15	9 7/8	2 1/64	19.25	36.25	16 1/2	9 7/8
1 1 1/2	8.50	17.25	15	9 7/8	2 1/32	19.25	36.25	16 1/2	9 7/8
1 33/64	9.00	18.15	15 1/8	10	2 3/64	20.00	37.50	17	10 3/8
1 1 1/4	9.00	18.15	15 1/8	10	2 1/16	20.00	37.50	17	10 3/8
1 35/64	9.50	19.00	15 1/4	10 1/8	2 5/64	20.75	38.75	17	10 3/8
1 1 1/8	9.50	19.00	15 1/4	10 1/8	2 3/32	20.75	38.75	17	10 3/8
1 37/64	10.00	20.00	15 3/8	10 1/4	2 7/64	21.50	40.00	17	10 3/8
1 1 1/8	10.00	20.00	15 3/8	10 1/4	2 1/8	21.50	40.00	17	10 3/8
1 39/64	10.50	21.00	15 1/2	10 3/8	2 9/64	22.25	41.25	17	10 3/8
1 1 1/2	10.50	21.00	15 1/2	10 3/8	2 5/32	22.25	41.25	17	10 3/8
1 41/64	11.00	22.00	15 5/8	10 1/2	2 11/64	23.00	42.50	17	10 3/8

Continued on next page

Drills 1 1/8 in. to 3 in. have shank 1 1/4 in. in diameter by 6 in. long.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Straight Shank Twist Drills Taper Length



No. 104 Carbon Steel No. 404 "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
2 3/16	\$23.00	\$42.50	17	10 3/8	2 47/64	\$38.00	\$85.00	20 1/2	13 7/8
2 13/64	23.75	43.75	17 1/2	10 7/8	2 3/4	38.00	85.00	20 1/2	13 7/8
2 7/32	23.75	43.75	17 1/2	10 7/8	2 49/64	39.25	87.50	20 1/2	13 7/8
2 15/64	24.50	45.00	17 1/2	10 7/8	2 53/64	39.25	87.50	20 1/2	13 7/8
2 1/4	24.50	45.00	17 1/2	10 7/8	2 51/64	40.50	90.00	20 1/2	13 7/8
2 17/64	25.25	47.50	17 1/2	10 7/8	2 9/16	40.50	90.00	20 1/2	13 7/8
2 9/32	25.25	47.50	17 1/2	10 7/8	2 33/64	41.75	92.50	21	14 3/8
2 19/64	26.00	50.00	17 1/2	10 7/8	2 27/32	41.75	92.50	21	14 3/8
2 5/16	26.00	50.00	17 1/2	10 7/8	2 32/64	43.00	95.00	21	14 3/8
2 11/32	26.75	52.50	18	11 3/8	2 7/8	43.00	95.00	21	14 3/8
2 13/32	26.75	52.50	18	11 3/8	2 57/64	44.25	97.50	21	14 3/8
2 23/64	27.50	55.00	18	11 3/8	2 33/32	44.25	97.50	21	14 3/8
2 31/64	27.50	55.00	18	11 3/8	2 37/64	45.50	100.00	21	14 3/8
2 35/64	28.25	57.50	18 1/2	11 7/8	2 9/16	45.50	100.00	21	14 3/8
2 15/32	28.25	57.50	18 1/2	11 7/8	2 81/64	46.75	102.50	22	15 3/8
2 27/64	29.00	60.00	18 1/2	11 7/8	2 31/32	46.75	102.50	22	15 3/8
2 7/16	29.00	60.00	18 1/2	11 7/8	2 33/64	48.00	105.00	22	15 3/8
2 29/64	29.75	62.50	19	12 3/8	3	48.00	105.00	22	15 3/8
2 33/64	29.75	62.50	19	12 3/8	3 1/16	52.00	112.50	22	15 3/8
2 37/64	30.50	65.00	19	12 3/8	3 1/8	56.00	120.00	22	15 3/8
2 11/32	30.50	65.00	19	12 3/8	3 3/16	60.00	127.50	22	15 3/8
2 39/64	31.25	67.50	19 1/4	12 5/8	3 1/4	65.00	135.00	23	16 1/4
2 13/32	31.25	67.50	19 1/4	12 5/8	3 5/16	70.00	142.50	23	16 1/4
2 35/64	32.00	70.00	19 1/4	12 5/8	3 3/8	75.00	150.00	23	16 1/4
2 9/16	32.00	70.00	19 1/4	12 5/8	3 7/16	80.00	157.50	23	16 1/4
2 37/64	33.00	72.50	19 1/2	12 7/8	3 1/2	85.00	165.00	24	17 1/8
2 41/64	33.00	72.50	19 1/2	12 7/8	3 9/16	91.00	172.50	24	17 1/8
2 39/32	34.00	75.00	19 1/2	12 7/8	3 5/8	98.00	180.00	24	17 1/8
2 39/64	34.00	75.00	19 1/2	12 7/8	3 11/16	105.00	187.50	24	17 1/8
2 43/64	35.00	77.50	20	13 3/8	3 3/4	112.00	195.00	24	17 1/8
2 21/32	35.00	77.50	20	13 3/8	3 13/16	119.00	202.50	24	17 1/8
2 43/64	36.00	80.00	20	13 3/8	3 7/8	126.00	210.00	24	17 1/8
2 11/16	36.00	80.00	20	13 3/8	3 15/16	133.00	217.50	24	17 1/8
2 45/64	37.00	82.50	20 1/2	13 7/8	4	140.00	225.00	25	18 1/8
2 23/32	37.00	82.50	20 1/2	13 7/8					

Drills 1 49/64 in. to 3 in. have shanks 1 3/4 in. diameter by 6 inches long.

Drills 3 5/64 in. to 4 in. have shanks 2 in. diameter by 6 in. long.

Thirty-second sizes not listed take list midway between sixteenth sizes.

Sixty-fourth sizes furnished at list of the next larger size.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

W&B

Established 1854
Whitman & Barnes

W&B

Straight Shank Twist Drills

Jobbers' Length



No. 105 Carbon Steel

No. 405 "Diamond" High Speed

Diameter Ins.	Price per Dozen		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed		
1/32	\$1.50	.....	1 7/16	9/16
3/64	1.55	.....	1 11/16	2 5/8
1/16	1.60	\$5.70	2 1/2	3 3/8
5/64	1.65	5.70	2 5/8	1 1/4
3/32	1.70	5.70	2 3/4	1 3/8
7/64	1.75	5.90	2 7/8	1 1/2
1/8	1.80	5.90	3	1 11/16
9/64	1.85	6.10	3 1/8	1 13/16
5/32	1.90	6.10	3 1/4	1 15/16
11/64	2.00	6.30	3 3/8	2 3/32
3/16	2.00	6.30	3 1/2	2 1/2
13/64	2.50	7.00	3 5/8	2 3/8
7/32	2.75	7.00	3 3/4	2 7/16
15/64	3.00	7.35	3 7/8	2 3/2
1/2	3.25	7.35	4	2 3/4
17/64	3.50	9.10	4 1/8	2 7/8
9/32	3.80	9.10	4 1/4	2 11/16
19/64	4.00	10.50	4 3/8	3 3/32
5/16	4.35	10.50	4 1/2	3 3/8
21/64	4.70	12.00	4 5/8	3 5/16
11/32	5.05	12.00	4 3/4	3 5/8
23/64	5.50	13.50	4 7/8	3 11/16
3/8	6.00	13.50	5	3 1/2
25/64	6.50	15.00	5 1/8	3 5/8
13/32	7.00	15.00	5 1/4	3 3/4
27/64	7.75	17.00	5 3/8	3 7/8
1/4	8.50	17.00	5 1/2	3 11/16
29/64	9.25	18.75	5 5/8	4 1/16
15/32	10.00	18.75	5 3/4	4 3/8
31/64	11.00	20.00	5 7/8	4 3/4
1/2	12.00	20.00	6	4 1/2

See page 19 for STAYBOLT DRILLS.

Packed: Sizes 1/32 to 9/32 in., one dozen in an envelope; 1/8 to 1/2 in., inclusive, in packages, one dozen of a size in a package

EXTRA CHARGE FOR CARBON DRILLS IN LESS THAN FULL PACKAGE

Letter Size Twist Drills



No. 106 Carbon Steel

No. 406 "Diamond" High Speed

Letter Size	Price per Dozen		Decimal Diameter Ins.	Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed			
A	\$3.00	\$7.35	.234	$3\frac{13}{16}$	$2\frac{19}{32}$
B	3.05	7.35	.238	$3\frac{13}{16}$	$2\frac{19}{32}$
C	3.10	7.35	.242	$3\frac{13}{16}$	$2\frac{19}{32}$
D	3.15	7.35	.246	$3\frac{13}{16}$	$2\frac{19}{32}$
E	3.25	7.35	.250	$3\frac{13}{16}$	$2\frac{19}{32}$
F	3.35	9.10	.257	$4\frac{1}{4}$	3
G	3.45	9.10	.261	$4\frac{1}{4}$	3
H	3.55	9.10	.266	$4\frac{1}{4}$	3
I	3.65	9.10	.272	$4\frac{1}{4}$	3
J	3.70	9.10	.277	$4\frac{1}{4}$	3
K	3.80	9.10	.281	$4\frac{1}{4}$	3
L	3.90	10.50	.290	$4\frac{1}{4}$	$2\frac{31}{32}$
M	4.00	10.50	.295	$4\frac{1}{4}$	$2\frac{31}{32}$
N	4.25	10.50	.302	$4\frac{1}{4}$	$2\frac{31}{32}$
O	4.40	10.50	.316	$4\frac{1}{4}$	$2\frac{31}{32}$
P	4.60	12.00	.323	$4\frac{5}{8}$	$3\frac{5}{8}$
Q	4.75	12.00	.332	$4\frac{3}{4}$	$3\frac{5}{8}$
R	5.00	12.00	.339	$4\frac{3}{4}$	$3\frac{7}{16}$
S	5.15	13.50	.348	$4\frac{7}{8}$	$3\frac{1}{2}$
T	5.30	13.50	.358	$4\frac{7}{8}$	$3\frac{1}{2}$
U	5.50	13.50	.368	5	$3\frac{5}{8}$
V	6.00	13.50	.377	5	$3\frac{5}{8}$
W	6.50	15.00	.386	$5\frac{1}{8}$	$3\frac{3}{4}$
X	6.75	15.00	.397	$5\frac{1}{4}$	$3\frac{7}{8}$
Y	7.00	15.00	.404	$5\frac{1}{4}$	$3\frac{7}{8}$
Z	7.25	17.00	.413	$5\frac{3}{8}$	$3\frac{3}{4}$

Decimal equivalent to fractional inches see page 99.

Packed: Sizes "L" and smaller, one dozen in an envelope. "M" to "Z" inclusive, one dozen in a package.

EXTRA CHARGE FOR CARBON DRILLS IN LESS THAN FULL PACKAGE

Wire Gauge Twist Drills



No. 107 Carbon Steel
 No. 407 "Diamond" High Speed

Wire Gauge No.	Price per Dozen		Decimal Diam. Ins.	Length Over All Ins.	Length of Twist Ins.	Wire Gauge No.	Price per Dozen		Decimal Diameter Ins.	Length Over All Ins.	Length Twist Ins.
	Carbon Steel	High Speed					Carbon Steel	High Speed			
1	\$2.75	\$7.00	.2280	4	2 ²¹ / ₁₆	31	\$1.75	\$5.90	.1200	2 ³ / ₄	1 ¹¹ / ₁₆
2	2.75	7.00	.2210	3 ⁵ / ₁₆	2 ⁵ / ₈	32	1.75	5.90	.1160	2 ¹¹ / ₁₆	1 ⁵ / ₈
3	2.75	7.00	.2130	3 ⁹ / ₁₆	2 ⁹ / ₈	33	1.75	5.90	.1130	2 ¹¹ / ₁₆	1 ⁵ / ₈
4	2.75	7.00	.2090	3 ⁷ / ₈	2 ¹³ / ₈	34	1.75	5.90	.1110	2 ⁵ / ₈	1 ⁹ / ₁₆
5	2.75	7.00	.2055	3 ⁵ / ₁₆	2 ³ / ₁₆	35	1.75	5.90	.1100	2 ⁹ / ₁₆	1 ¹ / ₂
6	2.50	7.00	.2040	3 ⁹ / ₁₆	2 ¹ / ₁₆	36	1.75	5.90	.1065	2 ⁹ / ₁₆	1 ¹ / ₂
7	2.50	7.00	.2010	3 ³ / ₄	2 ¹ / ₂	37	1.75	5.90	.1040	2 ¹ / ₂	1 ⁷ / ₁₆
8	2.50	7.00	.1990	3 ¹¹ / ₁₆	2 ³ / ₂	38	1.75	5.90	.1015	2 ⁷ / ₁₆	1 ³ / ₈
9	2.50	7.00	.1960	3 ¹¹ / ₁₆	2 ⁷ / ₁₆	39	1.75	5.90	.0995	2 ⁷ / ₁₆	1 ¹¹ / ₁₆
10	2.50	7.00	.1935	3 ⁵ / ₈	2 ³ / ₈	40	1.75	5.90	.0980	2 ³ / ₈	1 ¹ / ₂
11	2.25	6.30	.1910	3 ⁹ / ₁₆	2 ¹ / ₂	41	1.70	5.70	.0960	2 ⁵ / ₁₆	1 ⁵ / ₁₆
12	2.25	6.30	.1890	3 ⁹ / ₁₆	2 ⁹ / ₁₆	42	1.70	5.70	.0935	2 ⁵ / ₁₆	1 ¹ / ₄
13	2.25	6.30	.1850	3 ¹ / ₂	2 ⁹ / ₂	43	1.70	5.70	.0890	2 ¹ / ₄	1 ⁷ / ₁₆
14	2.25	6.30	.1820	3 ⁷ / ₁₆	2 ¹ / ₄	44	1.70	5.70	.0860	2 ³ / ₁₆	1 ³ / ₁₆
15	2.25	6.30	.1800	3 ⁷ / ₁₆	2 ⁷ / ₂	45	1.70	5.70	.0820	2 ³ / ₁₆	1 ¹ / ₈
16	2.00	6.30	.1770	3 ³ / ₈	2 ³ / ₁₆	46	1.65	5.70	.0810	2 ¹ / ₈	1 ¹ / ₈
17	2.00	6.30	.1730	3 ⁵ / ₁₆	2 ⁵ / ₂	47	1.65	5.70	.0785	2 ¹ / ₁₆	1 ³ / ₁₆
18	2.00	6.30	.1695	3 ⁵ / ₁₆	2 ¹ / ₈	48	1.65	5.70	.0760	2 ¹ / ₁₆	1 ¹ / ₁₆
19	2.00	6.30	.1660	3 ¹ / ₄	2 ³ / ₂	49	1.65	5.70	.0730	2	1
20	2.00	6.30	.1610	3 ³ / ₁₆	2 ¹ / ₁₆	50	1.65	5.70	.0700	1 ¹⁵ / ₁₆	3 ¹ / ₁₆
21	1.90	6.10	.1590	3 ³ / ₁₆	2	51	1.60	5.70	.0670	1 ¹⁵ / ₁₆	2 ⁷ / ₁₆
22	1.90	6.10	.1570	3 ¹ / ₈	2	52	1.60	5.70	.0635	1 ⁷ / ₈	1 ⁷ / ₈
23	1.90	6.10	.1540	3 ¹ / ₁₆	1 ³ / ₂	53	1.60	5.70	.0595	1 ¹³ / ₁₆	2 ⁷ / ₁₆
24	1.90	6.10	.1520	3 ¹ / ₁₆	1 ¹⁵ / ₁₆	54	1.60	5.70	.0550	1 ¹³ / ₁₆	2 ³ / ₁₆
25	1.90	6.10	.1495	3	1 ² / ₂	55	1.60	5.70	.0520	1 ³ / ₄	1 ¹³ / ₁₆
26	1.80	6.10	.1470	2 ¹⁵ / ₁₆	1 ⁷ / ₈	56	1.55	5.70	.0465	1 ¹¹ / ₁₆	1 ¹³ / ₁₆
27	1.80	6.10	.1440	2 ¹⁵ / ₁₆	1 ³ / ₂	57	1.55	5.70	.0430	1 ¹¹ / ₁₆	2 ³ / ₁₆
28	1.80	6.10	.1405	2 ⁷ / ₈	1 ¹⁵ / ₁₆	58	1.55	5.70	.0420	1 ⁵ / ₈	2 ³ / ₁₆
29	1.80	6.10	.1360	2 ³ / ₁₆	1 ³ / ₄	59	1.55	5.70	.0410	1 ⁹ / ₁₆	1 ¹ / ₁₆
30	1.80	6.10	.1285	2 ¹⁵ / ₁₆	1 ³ / ₂	60	1.55	5.70	.0400	1 ⁹ / ₁₆	1 ¹ / ₁₆

Continued on next page

Packed one dozen of a size in an envelope.

EXTRA CHARGE FOR CARBON DRILLS IN LESS THAN FULL ENVELOPE

Wire Gauge Twist Drills**No. 107 Carbon Steel (Continued)**

Wire Gauge No.	Price per Dozen	Decimal Diameter Ins.	Length Over All, Ins.	Length of Twist Ins.	Wire Gauge No.	Price per Dozen	Decimal Diameter Ins.	Length Over All Ins.	Length of Twist Ins.
61	\$1.50	.0390	1 1/2	5/8	71	\$1.50	.0260	1 5/16	1/2
62	1.50	.0380	1 1/2	5/8	72	1.50	.0250	1 1/4	7/16
63	1.50	.0370	1 1/2	5/8	73	1.50	.0240	1 3/16	3/8
64	1.50	.0360	1 1/2	5/8	74	1.50	.0225	1 1/8	5/16
65	1.50	.0350	1 1/2	5/8	75	1.50	.0210	1 1/16	1/4
66	1.50	.0330	1 1/2	9/16	76	1.50	.0200	1	1/4
67	1.50	.0320	1 7/16	9/16	77	1.50	.0180	15/16	7/32
68	1.50	.0310	1 7/16	9/16	78	1.50	.0160	7/8	7/32
69	1.50	.02925	1 3/8	9/16	79	1.50	.0145	13/16	3/16
70	1.50	.0280	1 5/8	9/16	80	1.50	.0135	3/4	3/16

Packed 1 dozen of a size in an envelope.

Stay-Bolt Drills (Tell-Tale Drills)
No. 105 Carbon Steel
No. 405 "Diamond" High Speed

Diameter Ins.	Price Per Dozen		Length Ins.	Length of Twist Ins.
	Carbon Steel	High Speed		
3/16	\$2.25	\$6.30	3 1/2	2 5/16
7/32	2.75	7.00	3 3/4	2 1/2

Bonding Drills
No. 105F Carbon Steel
No. 508 "Diamond" High Speed

Diameter Ins.	Price Per Dozen		High Speed Shank Ins.	Length Ins.	Length of Twist
	Carbon Steel	High Speed			
*3/8	....	.....	9/32	3	1 3/4
*3/8	....	.....	3/8	3	1 3/4
9/32	\$3.80	\$9.10	..	3	1 3/4

*Made only in High Speed for Duplex Channel Pins. Price on application

Specify shank wanted, otherwise 9/32 in. shank will be sent.

Specialty adapted for drilling holes for bonding wires in track circuit signal work.

HIGH SPEED recommended for drilling in hard rails.

Packed 1 dozen of a size in an envelope.

EXTRA CHARGE FOR CARBON DRILLS IN LESS THAN FULL ENVELOPE

Center Drills



No. 108A Carbon Steel

Diameter Ins.	Price per Dozen	Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price per Dozen	Length Over All Ins.	Length of Twist Ins.
$\frac{1}{16}$	\$1.60	$\frac{11}{8}$	$\frac{5}{8}$	$\frac{13}{64}$	\$2.50	$\frac{11}{2}$	1
$\frac{3}{64}$	1.65	$\frac{11}{8}$	$\frac{5}{8}$	$\frac{7}{32}$	2.75	$\frac{11}{2}$	1
$\frac{3}{32}$	1.70	$\frac{11}{4}$	$\frac{13}{16}$	$\frac{15}{64}$	3.00	$\frac{11}{2}$	1
$\frac{7}{64}$	1.75	$\frac{11}{4}$	$\frac{13}{16}$	$\frac{1}{4}$	3.25	$\frac{11}{2}$	1
$\frac{1}{8}$	1.80	$\frac{11}{4}$	$\frac{13}{16}$	$\frac{17}{64}$	3.50	$\frac{11}{2}$	1
$\frac{9}{64}$	1.85	$\frac{11}{4}$	$\frac{13}{16}$	$\frac{9}{32}$	3.80	$\frac{11}{2}$	1
$\frac{5}{32}$	1.90	$\frac{11}{2}$	1	$\frac{19}{64}$	4.00	$\frac{11}{2}$	1
$\frac{11}{64}$	2.00	$\frac{11}{2}$	1	$\frac{5}{16}$	4.35	$\frac{11}{2}$	1
$\frac{3}{16}$	2.25	$\frac{11}{2}$	1	.....	.....	.....	.....

Packed 1 dozen of a size in an envelope.

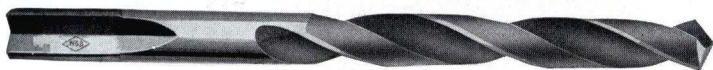
No. 108A Carbon Steel (Wire Gauge)

No. by Gauge	Price per Dozen	Length Over All Ins.	Length of Twist Ins.	No. by Gauge	Price per Dozen	Length Over All Ins.	Length of Twist Ins.
30	\$1.80	$\frac{11}{4}$	$\frac{13}{16}$	45	\$1.70	$\frac{11}{4}$	$\frac{13}{16}$
35	1.75	$\frac{11}{4}$	$\frac{13}{16}$	50	1.65	$\frac{11}{4}$	$\frac{13}{16}$
40	1.75	$\frac{11}{4}$	$\frac{13}{16}$	55	1.60	$\frac{11}{4}$	$\frac{13}{16}$

Packed 1 dozen of a size in an envelope.

Two Grooved Shank Drills

Taper Length



No. 104D Carbon Steel

No. 404D "Diamond" High Speed

Dimensions and List Prices same as Straight Shank. Taper Length Drills No. 104 and 404, pages 13, 14 and 15.

Jobber's Length



No. 105D Carbon Steel

No. 405D "Diamond" High Speed

Dimensions, List Prices and Packing same as Jobbers' Length. Straight Shank No. 105 and No. 405, page 16.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Coe's Drills

Fitting Coe's Blacksmiths' Drill Press and
Prentice Drill Press No. 3

Style No. 1



Style No. 2

No. 110 Carbon Steel

No. 506 "Diamond" High Speed

Shanks .648 inches diameter (commonly called $\frac{11}{64}$) and $2\frac{1}{4}$ inches long.

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
$\frac{1}{8}$	\$0.50	.....	$4\frac{7}{8}$	2	$\frac{3}{32}$	\$2.40	\$3.90	6	$3\frac{5}{16}$
$\frac{5}{32}$	.55	.....	$5\frac{1}{8}$	$2\frac{1}{4}$	1	2.50	4.10	6	$3\frac{5}{16}$
$\frac{3}{16}$	.60	.....	$5\frac{3}{8}$	$2\frac{1}{2}$	$1\frac{1}{32}$	2.60	4.30	6	$3\frac{1}{4}$
$\frac{7}{32}$	.65	.....	$5\frac{5}{8}$	$2\frac{3}{4}$	$1\frac{1}{16}$	2.70	4.50	6	$3\frac{1}{4}$
$\frac{1}{4}$	.70	\$1.20	6	$3\frac{1}{8}$	$1\frac{3}{32}$	2.80	4.75	6	$3\frac{1}{4}$
$\frac{9}{32}$	.75	1.30	6	$3\frac{1}{8}$	$1\frac{1}{8}$	2.90	5.00	6	$3\frac{1}{4}$
$\frac{5}{16}$	.80	1.40	6	$3\frac{1}{8}$	$1\frac{5}{32}$	3.00	5.25	6	$3\frac{1}{4}$
$\frac{11}{32}$	.85	1.50	6	$3\frac{1}{8}$	$1\frac{3}{16}$	3.10	5.50	6	$3\frac{1}{4}$
$\frac{3}{8}$	.90	1.55	6	$3\frac{1}{4}$	$1\frac{7}{32}$	3.20	5.80	6	$3\frac{1}{4}$
$\frac{13}{32}$	.95	1.65	6	$3\frac{1}{4}$	$1\frac{1}{4}$	3.30	6.10	6	$3\frac{1}{4}$
$\frac{7}{16}$	1.00	1.70	6	$3\frac{1}{4}$	$1\frac{5}{16}$	3.45	6.40	6	$3\frac{1}{4}$
$\frac{15}{32}$	1.05	1.80	6	$3\frac{1}{4}$	$1\frac{9}{16}$	3.60	6.70	6	$3\frac{1}{4}$
$\frac{1}{2}$	1.10	1.85	6	$3\frac{5}{16}$	$1\frac{11}{32}$	3.75	7.00	6	$3\frac{1}{4}$
$\frac{17}{32}$	1.15	1.95	6	$3\frac{5}{16}$	$1\frac{3}{8}$	3.90	7.40	6	$3\frac{1}{4}$
$\frac{9}{16}$	1.20	2.05	6	$3\frac{5}{16}$	$1\frac{13}{32}$	4.05	7.80	6	$3\frac{1}{4}$
$\frac{19}{32}$	1.25	2.20	6	$3\frac{5}{16}$	$1\frac{7}{16}$	4.20	8.20	6	$3\frac{1}{4}$
$\frac{5}{8}$	1.30	2.30	6	$3\frac{5}{16}$	$1\frac{15}{32}$	4.35	8.60	6	$3\frac{1}{4}$
$\frac{23}{32}$	1.40	2.40	6	$3\frac{5}{16}$	$1\frac{1}{2}$	4.50	9.00	6	$3\frac{1}{4}$
$\frac{11}{16}$	1.50	2.50	6	$3\frac{5}{16}$	$1\frac{9}{16}$	5.00	.....	6	$3\frac{1}{8}$
$\frac{25}{32}$	1.60	2.65	6	$3\frac{5}{16}$	$1\frac{5}{8}$	5.50	.....	6	$3\frac{1}{8}$
$\frac{3}{4}$	1.70	2.75	6	$3\frac{5}{16}$	$1\frac{11}{16}$	6.00	.....	6	$3\frac{1}{8}$
$\frac{25}{32}$	1.80	2.90	6	$3\frac{5}{16}$	$1\frac{3}{4}$	6.50	.....	6	$3\frac{1}{8}$
$\frac{13}{16}$	1.90	3.00	6	$3\frac{5}{16}$	$1\frac{7}{8}$	7.00	.....	6	$3\frac{1}{8}$
$\frac{27}{32}$	2.00	3.15	6	$3\frac{5}{16}$	$1\frac{7}{8}$	8.00	.....	6	$3\frac{1}{8}$
$\frac{23}{16}$	2.10	3.30	6	$3\frac{5}{16}$	$1\frac{15}{16}$	9.00	.....	6	$3\frac{1}{8}$
$\frac{29}{16}$	2.20	3.50	6	$3\frac{5}{16}$	2	10.00	.....	6	$3\frac{1}{8}$
$\frac{15}{8}$	2.30	3.70	6						

HIGH SPEED furnished in sizes over 1 inch in diameter with .648 shank at customer's risk only. We consider this shank too weak in larger sizes.

Style No. 2 furnished unless otherwise ordered.

Drills ordered with shanks other than specified above will be considered special and charged as such, price based on quantity ordered.

Sixty-fourth sizes take list of next larger size.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Silver and Deming Drills

Blacksmiths' Short Length



Style No. 1



Style No. 2

No. 112 Carbon Steel

No. 412 "Diamond" High Speed

Shanks $\frac{1}{2}$ -inch diameter and $2\frac{1}{4}$ -inches long.

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
$\frac{1}{8}$	\$0.45	.....	$4\frac{7}{8}$	2	$\frac{27}{32}$	\$2.00	\$3.15	6	$3\frac{5}{16}$
$\frac{5}{32}$	.45	.....	$5\frac{1}{8}$	$2\frac{1}{4}$	$\frac{7}{8}$	2.10	3.30	6	$3\frac{5}{16}$
$\frac{3}{16}$	.50	.....	$5\frac{3}{8}$	$2\frac{1}{2}$	$\frac{29}{32}$	2.20	3.50	6	$3\frac{5}{16}$
$\frac{7}{32}$	.55	.....	$5\frac{5}{8}$	$2\frac{3}{4}$	$\frac{15}{16}$	2.30	3.70	6	$3\frac{5}{16}$
$\frac{1}{4}$	.60	\$1.10	6	$3\frac{1}{8}$	$\frac{31}{32}$	2.40	3.90	6	$3\frac{5}{16}$
$\frac{9}{32}$	.65	1.20	6	$3\frac{1}{8}$	1	2.50	4.10	6	$3\frac{5}{16}$
$\frac{5}{16}$	.70	1.30	6	$3\frac{1}{8}$	$1\frac{1}{32}$	2.60	4.30	6	$3\frac{1}{4}$
$\frac{11}{32}$	.75	1.40	6	$3\frac{1}{8}$	$1\frac{1}{16}$	2.70	4.50	6	$3\frac{1}{4}$
$\frac{3}{8}$	.80	1.45	6	$3\frac{1}{4}$	$1\frac{3}{32}$	2.80	4.75	6	$3\frac{1}{4}$
$\frac{13}{32}$	.85	1.55	6	$3\frac{1}{4}$	$1\frac{1}{8}$	2.90	5.00	6	$3\frac{1}{4}$
$\frac{7}{16}$	.90	1.60	6	$3\frac{1}{4}$	$1\frac{5}{32}$	3.00	5.25	6	$3\frac{1}{4}$
$\frac{15}{32}$	.95	1.70	6	$3\frac{1}{4}$	$1\frac{3}{16}$	3.10	5.50	6	$3\frac{1}{4}$
1	1.00	1.75	6	$3\frac{5}{16}$	$1\frac{7}{32}$	3.20	5.80	6	$3\frac{1}{4}$
$\frac{17}{32}$	1.05	1.90	6	$3\frac{5}{16}$	$1\frac{1}{4}$	3.30	6.10	6	$3\frac{1}{4}$
$\frac{9}{16}$	1.10	2.05	6	$3\frac{5}{16}$	$1\frac{9}{32}$	3.45	6.40	6	$3\frac{1}{4}$
$\frac{19}{32}$	1.20	2.20	6	$3\frac{5}{16}$	$1\frac{5}{16}$	3.60	6.70	6	$3\frac{1}{4}$
$\frac{5}{8}$	1.30	2.30	6	$3\frac{5}{16}$	$1\frac{11}{32}$	3.75	7.00	6	$3\frac{1}{4}$
$\frac{21}{32}$	1.40	2.40	6	$3\frac{5}{16}$	$1\frac{3}{8}$	3.90	7.40	6	$3\frac{1}{4}$
$1\frac{1}{16}$	1.50	2.50	6	$3\frac{5}{16}$	$1\frac{13}{32}$	4.05	7.80	6	$3\frac{1}{4}$
$\frac{23}{32}$	1.60	2.65	6	$3\frac{5}{16}$	$1\frac{1}{2}$	4.20	8.20	6	$3\frac{1}{4}$
$\frac{3}{4}$	1.70	2.75	6	$3\frac{5}{16}$	$1\frac{5}{8}$	4.35	8.60	6	$3\frac{1}{4}$
$\frac{25}{32}$	1.80	2.90	6	$3\frac{5}{16}$	$1\frac{7}{8}$	4.50	9.00	6	$3\frac{1}{4}$
$1\frac{1}{8}$	1.90	3.00	6	$3\frac{5}{16}$				6	$3\frac{1}{4}$

HIGH SPEED furnished in sizes over $\frac{3}{4}$ -inch diameter with $\frac{1}{2}$ -inch shank at customer's risk only. We consider $\frac{1}{2}$ -inch shanks too weak in larger sizes.

Style No. 2 furnished unless otherwise ordered.

Drills ordered with shanks other than specified above will be considered special and charged as such, price based on quantity ordered.

Sixty-fourth sizes take list of next larger size.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Prentice Drills

Blacksmiths' Taper Length



Style No. 1



Style No. 2

No. 111 Carbon Steel

No. 411 "Diamond" High Speed

Shanks $\frac{1}{2}$ -inch diameter and $2\frac{1}{2}$ -inches long.

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
$\frac{1}{8}$	\$0.45		$5\frac{1}{8}$	2	$\frac{27}{32}$	\$2.40	\$4.40	$10\frac{1}{4}$	$7\frac{1}{4}$
$\frac{5}{32}$	.45	....	$5\frac{3}{8}$	$2\frac{1}{4}$	$\frac{7}{8}$	2.60	4.75	$10\frac{1}{2}$	$7\frac{7}{16}$
$\frac{3}{16}$	.50	....	$5\frac{5}{8}$	$2\frac{1}{2}$	$\frac{29}{32}$	2.80	5.15	$10\frac{5}{8}$	$7\frac{9}{16}$
$\frac{7}{32}$	.55	....	$5\frac{7}{8}$	$2\frac{3}{4}$	$\frac{15}{16}$	3.00	5.50	$10\frac{3}{4}$	$7\frac{11}{16}$
$\frac{1}{4}$	.60	\$1.10	$6\frac{1}{8}$	$3\frac{3}{16}$	$\frac{31}{32}$	3.25	5.90	$10\frac{7}{8}$	$7\frac{13}{16}$
$\frac{9}{32}$	.65	1.20	$6\frac{1}{4}$	$3\frac{5}{16}$	1	3.50	6.25	11	$7\frac{15}{16}$
$\frac{5}{16}$	.70	1.30	$6\frac{3}{8}$	$3\frac{7}{16}$	$1\frac{1}{32}$	3.75	6.75	$11\frac{1}{8}$	8
$\frac{11}{32}$	.75	1.40	$6\frac{1}{2}$	$3\frac{9}{16}$	$1\frac{1}{16}$	4.00	7.25	$11\frac{1}{4}$	$8\frac{1}{8}$
$\frac{3}{8}$	.80	1.50	$6\frac{3}{4}$	$3\frac{11}{16}$	$1\frac{1}{8}$	4.25	7.75	$11\frac{1}{2}$	$8\frac{3}{8}$
$\frac{13}{32}$	.90	1.65	7	$4\frac{1}{16}$	$1\frac{1}{4}$	4.50	8.25	$11\frac{3}{4}$	$8\frac{5}{8}$
$\frac{7}{16}$	1.00	1.75	$7\frac{1}{4}$	$4\frac{5}{16}$	$1\frac{5}{32}$	4.75	8.90	$11\frac{7}{8}$	$8\frac{3}{4}$
$\frac{15}{32}$	1.10	1.90	$7\frac{1}{2}$	$4\frac{9}{16}$	$1\frac{3}{16}$	5.00	9.50	12	$8\frac{7}{8}$
$\frac{1}{2}$	1.20	2.00	$7\frac{3}{4}$	$4\frac{13}{16}$	$1\frac{1}{2}$	5.25	10.15	$12\frac{1}{8}$	9
$\frac{17}{32}$	1.30	2.15	8	$5\frac{1}{16}$	$1\frac{1}{4}$	5.50	10.75	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{9}{16}$	1.40	2.25	$8\frac{1}{4}$	$5\frac{5}{16}$	$1\frac{3}{8}$	5.75	11.50	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{11}{32}$	1.50	2.40	$8\frac{1}{2}$	$5\frac{9}{16}$	$1\frac{5}{16}$	6.00	12.25	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{13}{32}$	1.60	2.50	$8\frac{3}{4}$	$5\frac{13}{16}$	$1\frac{3}{4}$	6.25	13.00	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{3}{8}$	1.70	2.75	9	6	$1\frac{7}{8}$	6.50	13.75	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{21}{32}$	1.80	3.00	$9\frac{1}{4}$	$6\frac{1}{4}$	$1\frac{13}{32}$	7.00	14.65	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{23}{32}$	1.90	3.25	$9\frac{1}{2}$	$6\frac{1}{2}$	$1\frac{1}{16}$	7.50	15.50	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{25}{32}$	2.00	3.50	$9\frac{3}{4}$	$6\frac{3}{4}$	$1\frac{1}{2}$	8.00	16.40	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{27}{32}$	2.10	3.75	$9\frac{7}{8}$	$6\frac{7}{8}$	$1\frac{1}{2}$	8.50	17.25	$12\frac{1}{2}$	$9\frac{3}{8}$
$\frac{15}{16}$	2.20	4.00	10	7					

HIGH SPEED drills with $\frac{1}{2}$ -inch shanks furnished in sizes over $\frac{3}{4}$ -inch diameter at customer's risk only. We consider $\frac{1}{2}$ -inch shank too weak in larger sizes.

Style No. 2 furnished unless otherwise ordered.

Drills ordered with shanks other than specified above will be considered special and charged as such, price based on quantity ordered.

Sixty-fourth sizes take list of next larger size.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Taper Square Shank Ratchet Drills



No. 109E Carbon Steel
No. 507 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/8	\$0.90	....	4 1/4	2	3 1/2	\$2.40	\$5.25	8 1/4	6 1/8
5/32	.95	....	4 5/8	2 1/4	1	2.55	5.50	8 1/2	6 3/8
3/16	.95	....	4 3/4	2 3/8	1 1/2	2.70	5.75	8 3/4	6 5/8
7/32	1.00	....	4 7/8	2 5/8	1 1/16	2.85	6.00	9	6 7/8
1/4	1.00	\$2.50	5	2 3/4	1 3/4	3.00	6.30	9	6 7/8
9/32	1.05	2.55	5	2 3/4	1 1/8	3.10	6.70	9	6 7/8
5/16	1.10	2.60	5	2 7/8	1 5/8	3.25	7.00	9	6 7/8
11/32	1.15	2.65	5	2 7/8	1 3/16	3.35	7.30	9	6 7/8
3/8	1.20	2.70	6	3 7/8	1 7/8	3.50	7.60	9	6 7/8
13/32	1.25	2.75	6 1/4	4 1/8	1 1/4	3.65	7.90	9	6 7/8
7/16	1.25	2.80	6 1/4	4 1/8	1 9/32	3.75	8.25	9	6 3/16
15/32	1.30	2.85	6 1/4	4 1/8	1 5/16	3.90	8.60	9	6 3/16
1/2	1.30	2.90	6 1/2	4 3/8	1 1/2	4.05	9.00	9	6 3/16
9/16	1.35	2.95	6 1/2	4 3/8	1 3/8	4.20	9.40	9	6 3/16
5/8	1.35	3.00	6 1/2	4 3/8	1 1/2	4.35	9.80	9	6 3/16
11/16	1.40	3.10	6 1/2	4 3/8	1 7/16	4.50	10.20	9	6 3/16
3/4	1.40	3.20	6 1/2	4 3/8	1 3/4	4.65	10.60	9	6 3/16
13/16	1.45	3.30	6 1/2	4 3/8	1 1/2	4.80	11.00	9	6 3/16
7/8	1.45	3.40	6 1/2	4 3/8	1 9/16	5.10	....	9	6 3/16
15/16	1.50	3.50	6 1/2	4 3/8	1 5/8	5.40	....	9	6 3/16
1	1.55	3.65	6 1/2	4 3/8	1 11/16	5.75	....	9	6 3/4
1 1/8	1.65	3.80	6 1/2	4 3/8	1 3/4	6.10	....	9	6 3/4
1 1/4	1.75	4.00	7	4 7/8	1 13/16	6.50	....	9	6 3/4
1 1/2	1.90	4.20	7	4 7/8	1 7/8	6.90	....	9	6 3/4
1 3/4	2.05	4.50	7 1/2	5 3/8	1 15/16	7.30	....	9	6 3/4
1 7/8	2.20	4.70	7 3/4	5 5/8	2	7.75	....	9	6 3/4
1 5/8	2.30	5.00	8	5 7/8					

No. 1 or "A" Shanks—3/8 inch by 5/8 inch 1 1/2 inches long.
 No. 2 or "B" Shanks—1/2 inch by 3/4 inch 1 3/4 inches long.
 Unless otherwise specified "A" shank will be furnished. On HIGH SPEED over 1 inch, "B" shank will be furnished.
 Packed: Sizes 1/8 to 5/8 inch, one dozen; 3/4 to 1 inch, one-half dozen; 1 1/4 to 1 3/2 inch, one-third dozen; 1 1/4 to 1 1/2 inch, one-sixth dozen of a size in a package.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Self Oiling Drills

With Taper Shanks and Holes Through
Solid Metal for Lubricant



Style D Carbon Steel

*Style 4D "Diamond" High Speed

Diameter Ins.	Price Each	Length Over All Ins.	Twist Cut Ins.	Shank Taper	Diameter Ins.	Price Each	Length Over All Ins.	Twist Cut Ins.	Shank Taper
$\frac{1}{32}$	\$4.50	$8\frac{1}{2}$	$4\frac{3}{32}$	No. 2	$1\frac{9}{32}$	\$9.40	$14\frac{1}{8}$	$8\frac{11}{16}$	No. 4
$\frac{5}{8}$	4.70	$8\frac{3}{4}$	5		$1\frac{5}{16}$	10.15	$14\frac{1}{4}$	$8\frac{9}{16}$	
$\frac{1}{16}$	4.80	9	$5\frac{5}{16}$		$1\frac{11}{32}$	10.95	$14\frac{3}{8}$	$8\frac{3}{32}$	
$\frac{11}{16}$	4.95	$9\frac{1}{4}$	$5\frac{9}{16}$		$1\frac{1}{8}$	11.80	$14\frac{1}{2}$	9	
$\frac{3}{32}$	5.10	$9\frac{1}{2}$	$5\frac{13}{16}$		$1\frac{1}{32}$	12.30	$14\frac{5}{8}$	$9\frac{1}{2}$	
$\frac{3}{4}$	5.20	$9\frac{3}{4}$	$6\frac{1}{16}$		$1\frac{1}{16}$	12.85	$14\frac{3}{4}$	$9\frac{3}{32}$	
$\frac{5}{32}$	5.35	$9\frac{7}{8}$	$6\frac{3}{16}$		$1\frac{1}{8}$	13.35	$14\frac{7}{8}$	$9\frac{11}{32}$	
$\frac{15}{16}$	5.50	10	$6\frac{7}{32}$		$1\frac{1}{2}$	14.00	15	$9\frac{3}{8}$	
$\frac{27}{32}$	5.70	$10\frac{1}{4}$	$6\frac{15}{32}$		$1\frac{3}{4}$	14.20	$15\frac{1}{8}$	$9\frac{3}{32}$	
$\frac{7}{8}$	5.90	$10\frac{1}{2}$	$6\frac{21}{32}$		$1\frac{9}{16}$	14.40	$15\frac{1}{4}$	$9\frac{17}{32}$	
$\frac{29}{32}$	6.05	$10\frac{5}{8}$	$6\frac{3}{4}$		$1\frac{5}{8}$	14.70	$15\frac{3}{8}$	$9\frac{5}{8}$	
$\frac{15}{16}$	6.20	$10\frac{3}{4}$	$6\frac{5}{16}$		$1\frac{3}{4}$	15.00	$15\frac{1}{2}$	$9\frac{3}{4}$	
$\frac{3}{32}$	6.35	$10\frac{7}{8}$	$6\frac{7}{16}$		$1\frac{7}{8}$	15.35	$15\frac{5}{8}$	$9\frac{7}{8}$	
1	6.50	11	$6\frac{9}{16}$		$1\frac{11}{16}$	15.70	$15\frac{3}{4}$	10	
$1\frac{1}{32}$	6.80	$11\frac{1}{8}$	$6\frac{23}{32}$	$1\frac{1}{8}$	16.10	$15\frac{7}{8}$	$10\frac{1}{8}$		
$1\frac{1}{16}$	7.10	$11\frac{1}{4}$	$6\frac{3}{4}$	$1\frac{3}{16}$	16.50	16	$10\frac{1}{4}$		
$1\frac{3}{32}$	7.45	$11\frac{1}{2}$	$6\frac{3}{2}$	$1\frac{5}{16}$	16.75	$16\frac{1}{8}$	$10\frac{3}{8}$		
$1\frac{1}{8}$	7.80	$11\frac{3}{4}$	$7\frac{3}{16}$	$1\frac{3}{8}$	17.00	$16\frac{1}{4}$	$10\frac{1}{2}$		
$1\frac{5}{32}$	8.00	$11\frac{7}{8}$	$7\frac{5}{16}$	$1\frac{7}{16}$	17.25	$16\frac{3}{8}$	$10\frac{5}{8}$		
$1\frac{3}{16}$	8.20	12	$7\frac{13}{16}$	$1\frac{1}{2}$	17.50	$16\frac{1}{2}$	$10\frac{3}{4}$		
$1\frac{7}{32}$	8.40	$12\frac{1}{8}$	$7\frac{1}{2}$	$1\frac{9}{16}$	17.85	$16\frac{1}{2}$	$10\frac{7}{8}$		
$1\frac{1}{4}$	8.70	$12\frac{1}{2}$	$7\frac{7}{8}$	$1\frac{5}{8}$	18.20	$16\frac{1}{2}$	$10\frac{7}{8}$		
				$1\frac{3}{4}$	18.60	$16\frac{1}{2}$	$10\frac{7}{8}$		
				2	19.00	$16\frac{1}{2}$	$10\frac{7}{8}$		

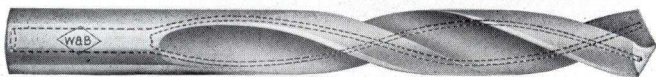
Sixty-fourth sizes take list of next larger size.

*HIGH SPEED PRICES QUOTED ON RECEIPT OF
SPECIFICATIONS

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Self Oiling Drills

With Straight Shanks and Holes Through
Solid Metal for Lubricant



Style C Carbon Steel

***Style 4C "Diamond" High Speed**

Diameter Inches	Price Each			Length of Twist, Ins.		
	Length Over All 8½ Ins.	Length Over All 10½ Ins.	Length Over All 13 Ins.	Length Over All 8½ Ins.	Length Over All 10½ Ins.	Length Over All 13 Ins.
1/32	\$4.70	\$5.40	\$6.10	5¼	7	9¼
5/64	4.70	5.40	6.10	5¼	7	9¼
3/32	4.70	5.40	6.20	5¼	7	9¼
11/64	4.80	5.40	6.20	5¼	7	9¼
23/64	4.80	5.40	6.30	5¼	7	9¼
3/16	4.80	5.40	6.30	5¼	7	9¼
25/64	4.90	5.50	6.40	5¼	7	9¼
13/32	5.00	5.60	6.50	5¼	7	9¼
27/64	5.00	5.80	6.60	5¼	7	9¼
7/16	5.10	5.90	6.80	5¼	7	9¼
29/64	5.20	6.00	6.90	5¼	7	9¼
15/32	5.30	6.10	7.00	5¼	7	9¼
31/64	5.40	6.20	7.10	5¼	7	9¼
1	5.50	6.30	7.20	5¼	7	9¼
1 1/32	5.60	6.50	7.40	5	6¾	9
1 1/16	5.80	6.80	7.70	5	6¾	9
1 3/32	6.00	7.00	7.90	5	6¾	9
1 1/8	6.10	7.20	8.10	5	6¾	9
1 5/32	6.30	7.40	8.30	5	6¾	9
1 3/16	6.50	7.60	8.60	5	6¾	9
1 7/32	6.70	7.80	8.80	5	6¾	9
1 1/4	6.80	7.90	9.00	5	6¾	9

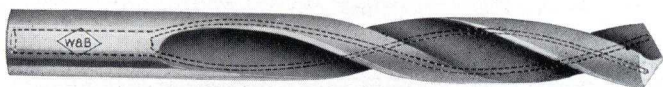
Sixty-fourth sizes take list of next larger size.

***HIGH SPEED PRICES QUOTED ON RECEIPT OF
SPECIFICATIONS**

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Self Oiling Drills

With Straight Shanks and Holes Through
Solid Metal for Lubricant



Style C Carbon Steel

***Style 4C "Diamond" High Speed**

Diameter Inches	Price Each			Length of Twist, Ins.		
	Length Over All 8½ Ins.	Length Over All 10½ Ins.	Length Over All 13 Ins.	Length Over All 8½ Ins.	Length Over All 10½ Ins.	Length Over All 13 Ins.
1 ⁹ / ₃₂	\$7.10	\$8.30	\$9.30	5	6 ³ / ₄	9
1 ⁵ / ₁₆	7.40	8.60	9.60	5	6 ³ / ₄	9
1 ¹¹ / ₃₂	7.70	9.00	10.00	5	6 ³ / ₄	9
1 ³ / ₈	8.00	9.30	10.30	5	6 ³ / ₄	9
1 ¹³ / ₃₂	8.30	9.60	10.70	5	6 ³ / ₄	9
1 ⁷ / ₁₆	8.60	9.90	11.20	5	6 ³ / ₄	9
1 ¹⁵ / ₃₂	8.90	10.30	11.50	5	6 ³ / ₄	9
1 ¹ / ₂	9.20	10.50	11.90	5	6 ³ / ₄	9
1 ¹⁷ / ₃₂	9.40	10.70	12.00	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ⁹ / ₁₆	9.60	10.90	12.10	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ¹⁹ / ₃₂	9.80	11.00	12.20	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ⁵ / ₈	10.00	11.20	12.40	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ²¹ / ₃₂	10.20	11.40	12.50	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ¹¹ / ₁₆	10.30	11.50	12.70	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ²³ / ₃₂	10.40	11.60	12.90	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ³ / ₄	10.50	11.80	13.00	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ²⁵ / ₃₂	10.70	12.00	13.20	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ¹³ / ₁₆	10.90	12.20	13.40	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ²⁷ / ₃₂	11.00	12.40	13.60	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ⁷ / ₈	11.20	12.50	13.70	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ²⁹ / ₃₂	11.40	12.70	14.00	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ¹⁵ / ₁₆	11.60	12.90	14.20	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
1 ³¹ / ₃₂	11.90	13.10	14.40	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄
2	12.10	13.30	14.60	4 ³ / ₄	6 ¹ / ₂	8 ³ / ₄

Sixty-fourth sizes take list of next larger size.

Drills 1 ³³/₆₄ to 2 inches diameter, 8½ inches long, have shanks 1½ inches diameter 3 inches long.

Drills 1 ³³/₆₄ to 2 inches diameter, 10½ inches long, have shanks 1½ inches diameter 3¼ inches long.

Drills 1 ³³/₆₄ to 2 inches diameter, 13 inches long, have shanks 1½ inches diameter, 3½ inches long.

***HIGH SPEED PRICES QUOTED ON RECEIPT OF
SPECIFICATIONS**

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Three Groove Twist Drills or Reamers Taper Shank



No. 102B Carbon Steel
No. 402B "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper
	Carbon Steel	High Speed					Carbon Steel	High Speed			
1/4	\$1.00	\$2.00	6 1/8	3	No. 1	1 3/8	\$6.50	\$17.00	14 1/2	8 7/8	No. 4
9/32	1.05	2.15	6 1/4	3 1/8		1 13/32	7.00	17.75	14 5/8	9	
5/16	1.10	2.25	6 3/8	3 1/8		1 7/16	7.50	18.50	14 3/4	9 1/8	
11/32	1.15	2.40	6 1/2	3 5/8		1 15/32	8.00	19.25	14 7/8	9 1/4	
3/8	1.20	2.50	6 3/4	3 9/16		1 1/2	8.50	20.00	15	9 3/8	
7/16	1.25	2.65	7	3 3/8		1 13/32	9.00	20.75	15 1/8	9 1/2	
1/2	1.30	2.75	7 1/4	4 1/16		1 9/16	9.50	21.50	15 1/4	9 5/8	
5/8	1.40	2.90	7 1/2	4 3/8		1 3/8	10.00	22.25	15 3/8	9 3/4	
3/4	1.50	3.00	7 3/4	4 5/8		1 5/8	10.50	23.00	15 1/2	9 7/8	
7/8	1.60	3.15	8	4 7/8		1 3/4	11.00	23.75	15 5/8	10	
1	1.70	3.25	8 1/4	5 1/8		1 11/16	11.50	24.50	15 3/4	10 1/8	
1 1/16	1.80	3.50	8 1/2	4 7/8		1 1/4	12.00	25.50	15 7/8	10 1/4	
1 1/8	1.90	3.75	8 3/4	5 1/16		1 1/8	12.50	26.50	16	10 1/4	
1 1/4	2.00	4.00	9	5 5/16		1 1/2	13.25	27.50	16 1/8	10 1/4	
1 1/2	2.10	4.25	9 1/4	5 1/2		1 3/4	14.00	28.50	16 3/4	10 3/8	
1 3/4	2.25	4.65	9 1/2	5 3/4		1 7/8	14.75	29.50	16 3/8	10 1/2	
1 7/8	2.40	5.00	9 3/4	6	1 23/32	15.50	30.50	16 1/2	10 9/16		
2	2.55	5.40	9 7/8	6 3/8	1 15/16	16.25	31.50	16 1/2	10 9/16		
2 1/16	2.70	5.75	10	6 5/8	1 3/4	17.00	32.50	16 1/2	10 9/16		
2 1/8	2.85	6.15	10 1/4	6 9/16	1 33/32	17.75	33.50	16 1/2	10 9/16		
2 1/4	3.00	6.50	10 1/2	6 13/16	2	18.50	34.50	16 1/2	10 9/16		
2 3/8	3.15	7.00	10 5/8	6 15/16	No. 2	2 1/32	19.25	36.00	16 1/2	9 1/2	No. 5
2 1/2	3.30	7.50	10 3/4	6 1/4		2 1/16	20.00	37.50	17	10 1/16	
2 3/4	3.45	8.00	10 7/8	6 3/8		2 1/8	21.50	40.50	17	10 1/16	
3	3.60	8.50	11	6 1/2		2 3/16	23.00	43.75	17	10 1/16	
3 1/16	3.75	9.00	11 1/8	6 5/8		2 1/4	24.50	47.50	17 1/2	10 9/16	
3 1/8	4.00	9.50	11 1/4	6 3/4		2 5/16	26.00	52.50	17 1/2	10 9/16	
3 1/4	4.25	10.25	11 1/2	7		2 3/8	27.50	60.00	18	10 7/8	
3 3/8	4.50	11.00	11 3/4	7 1/4		2 7/16	29.00	65.00	18 1/2	11 3/8	
3 1/2	4.75	11.75	11 7/8	7 3/8		2 1/2	30.50	70.00	19	11 7/8	
3 3/4	5.00	12.50	12	7 1/2		2 9/16	32.00	76.25	19 1/4	12 3/8	
4	5.25	13.25	12 1/8	7 5/8	2 5/8	34.00	82.50	19 1/2	12 3/8		
4 1/16	5.50	14.00	12 1/2	8	2 11/16	36.00	88.75	20	12 7/8		
4 1/8	5.75	14.75	14 1/8	8 1/2	2 3/4	38.00	95.00	20 1/2	13 1/4		
4 1/4	6.00	15.50	14 1/4	8 5/8	2 13/16	40.50	102.50	20 1/2	13 1/4		
4 1/2	6.25	16.25	14 3/8	8 3/4	2 7/8	43.00	110.00	21	13 3/4		
					2 15/16	45.50	117.50	21	13 3/4		
					3	48.00	125.00	22	14 5/8		

Sizes and dimensions not listed are special, subject to special prices.
 Sixty-fourth Sizes 1 1/2 inches and smaller take list next larger size.
 For enlarging cored, punched or drilled holes. Will not drill solid metal.

Three Groove Twist Drills or Reamers Straight Shank



No. 104B Carbon Steel No. 404B "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/4	\$1.00	\$2.00	6 1/8	4 1/8	1 3/32	\$7.00	\$17.75	14 5/8	9 1/2
5/16	1.05	2.15	6 1/4	4 1/8	1 1/16	7.50	18.50	14 3/4	9 5/8
3/8	1.10	2.25	6 3/8	4 1/8	1 1/8	8.00	19.25	14 7/8	9 3/4
7/16	1.15	2.40	6 1/2	4 1/4	1 1/4	8.50	20.00	15	9 7/8
1/2	1.20	2.50	6 3/4	4 1/4	1 1/2	9.00	20.75	15 1/8	10
9/16	1.25	2.65	7	4 3/8	1 5/8	9.50	21.50	15 1/4	10 1/8
5/8	1.30	2.75	7 1/4	4 5/8	1 3/4	10.00	22.25	15 3/8	10 1/4
11/16	1.40	2.90	7 1/2	4 7/8	1 7/8	10.50	23.00	15 1/2	10 3/8
3/4	1.50	3.00	7 3/4	5	1 1/2	11.00	23.75	15 5/8	10 1/2
13/16	1.60	3.15	8	5 1/4	1 11/16	11.50	24.50	15 3/4	10 5/8
7/8	1.70	3.25	8 1/4	5 3/8	1 1/2	12.00	25.50	15 7/8	10 3/4
15/16	1.80	3.50	8 1/2	5 5/8	1 3/4	12.50	26.50	16	10 7/8
1	1.90	3.75	8 3/4	5 3/4	1 1/2	13.25	27.50	16 1/8	10 7/8
1 1/16	2.00	4.00	9	5 7/8	1 13/16	14.00	28.50	16 1/4	10 1/4
1 1/8	2.10	4.25	9 1/4	6	1 1/2	14.75	29.50	16 3/8	10 5/8
1 1/4	2.25	4.65	9 1/2	6 3/16	1 7/8	15.50	30.50	16 1/2	10 1/2
1 1/2	2.40	5.00	9 3/4	6 3/8	1 1/2	16.25	31.50	16 1/2	10 1/2
1 3/4	2.55	5.40	9 7/8	6 1/2	1 15/16	17.00	32.50	16 1/2	10 1/2
1 7/8	2.70	5.75	10	6 5/8	1 3/2	17.75	33.50	16 1/2	10 1/2
2	2.85	6.15	10 1/4	6 3/4	2	18.50	34.50	16 1/2	10 1/2
2 1/8	3.00	6.50	10 1/2	7	2 1/32	19.25	36.00	16 1/2	9 7/8
2 1/4	3.15	7.00	10 5/8	7	2 1/16	20.00	37.50	17	10 3/8
2 3/8	3.30	7.50	10 3/4	7	2 1/8	21.50	40.50	17	10 3/8
2 1/2	3.45	8.00	10 7/8	7 1/8	2 3/16	23.00	43.75	17	10 3/8
2 7/8	3.60	8.50	11	7 3/16	2 1/4	24.50	47.50	17 1/2	10 7/8
3	3.75	9.00	11 1/8	7 5/16	2 5/16	26.00	52.50	17 1/2	10 7/8
3 1/16	4.00	9.50	11 1/4	7 3/8	2 3/8	27.50	60.00	18	11 3/8
3 1/8	4.25	10.25	11 1/2	7 5/8	2 7/16	29.00	65.00	18 1/2	11 7/8
3 1/4	4.50	11.00	11 3/4	7 7/8	2 1/2	30.50	70.00	19	12 3/8
3 3/8	4.75	11.75	11 7/8	8	2 9/16	32.00	76.25	19 1/4	12 5/8
3 1/2	5.00	12.50	12	8 1/8	2 5/8	34.00	82.50	19 1/2	12 7/8
3 3/4	5.25	13.25	12 1/8	8 1/8	2 11/16	36.00	88.75	20	13 3/8
3 7/8	5.50	14.00	12 1/2	8 1/2	2 3/4	38.00	95.00	20 1/2	13 7/8
4	5.75	14.75	14 1/8	9 1/8	2 13/16	40.50	102.50	20 1/2	13 7/8
4 1/8	6.00	15.50	14 1/4	9 1/4	2 7/8	43.00	110.00	21	14 3/8
4 1/4	6.25	16.25	14 3/8	9 3/8	2 15/16	45.50	117.50	21	14 3/8
4 1/2	6.50	17.00	14 1/2	9 1/2	3	48.00	125.00	22	15 3/8

Sizes and dimensions not listed are special, subject to special prices.
Sixty-fourth Sizes 1 1/2 inches and smaller take list next larger size.
Drills 1 1/4 in. to 3 in. have shanks 1 3/4 inches diameter by 6 inches long.
For enlarging cored, punched or drilled holes. Will not drill solid metal.

Four Groove Twist Drills or Reamers Taper Shank



No. 102C Carbon Steel
No. 402C "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper
	Carbon Steel	High Speed					Carbon Steel	High Speed			
1/4			6 1/8	3	No. 1	1 3/8	\$6.50	\$17.00	14 1/2	8 7/8	No. 4
3/2			6 1/4	3 1/16		1 3/2	7.00	17.75	14 5/8	9	
5/16			6 3/8	3 1/8		1 7/16	7.50	18.50	14 3/4	9 1/8	
11/32			6 1/2	3 5/16		1 11/32	8.00	19.25	14 7/8	9 1/4	
3/8			6 3/4	3 9/16		1 1/2	8.50	20.00	15	9 3/8	
13/32			7	3 13/16		1 1/2	9.00	20.75	15 1/8	9 1/2	
7/16			7 1/4	4 1/16		1 9/16	9.50	21.50	15 1/4	9 5/8	
15/32			7 1/2	4 3/8		1 13/16	10.00	22.25	15 3/8	9 3/4	
1/2	\$1.50	\$3.00	7 3/4	4 5/8		1 5/8	10.50	23.00	15 1/2	9 7/8	
17/32	1.60	3.15	8	4 7/8		1 3/2	11.00	23.75	15 5/8	10	
9/16	1.70	3.25	8 1/4	5 1/8		1 11/16	11.50	24.50	15 3/4	10 1/8	
						1 1/2	12.00	25.50	15 7/8	10 1/4	
19/32	1.80	3.50	8 1/2	4 7/8		1 3/4	12.50	26.50	16	10 1/2	
5/8	1.90	3.75	8 3/4	5 1/16		1 13/16	13.25	27.50	16 1/8	10 3/4	
21/32	2.00	4.00	9	5 5/16		1 13/16	14.00	28.50	16 1/4	10 3/8	
11/16	2.10	4.25	9 1/4	5 1/2		1 3/2	14.75	29.50	16 3/8	10 1/2	
23/32	2.20	4.65	9 1/2	5 3/4	1 7/8	15.50	30.50	16 1/2	10 9/16		
3/4	2.40	5.00	9 3/4	6	1 1/2	16.25	31.50	16 1/2	10 9/16		
25/32	2.55	5.40	9 7/8	6 3/16	1 15/16	17.00	32.50	16 1/2	10 9/16		
13/16	2.70	5.75	10	6 5/16	1 3/2	17.75	33.50	16 1/2	10 9/16		
27/32	2.85	6.15	10 1/4	6 9/16	2	18.50	34.50	16 1/2	10 9/16		
7/8	3.00	6.50	10 1/2	6 13/16							
29/32	3.15	7.00	10 5/8	6 15/16							
					No. 2	2 1/2	19.25	36.00	16 1/2	9 1/2	No. 5
15/16	3.30	7.50	10 3/4	6 1/4		2 1/16	20.00	37.50	17	10 1/16	
3/2	3.45	8.00	10 7/8	6 3/8		2 1/8	21.50	40.50	17	10 1/16	
1	3.60	8.50	11	6 1/2		2 3/16	23.00	43.75	17	10 1/16	
1 1/32	3.75	9.00	11 1/8	6 5/8		2 1/4	24.50	47.50	17 1/2	10 9/16	
1 1/16	4.00	9.50	11 1/4	6 3/4		2 5/16	26.00	52.50	17 1/2	10 9/16	
1 1/8	4.25	10.25	11 1/2	7		2 3/8	27.50	60.00	18	10 7/8	
1 1/4	4.50	11.00	11 3/4	7 1/4		2 1/2	29.00	65.00	18 1/2	11 3/8	
1 3/2	4.75	11.75	11 7/8	7 3/8		2 9/16	32.00	76.25	19 1/4	12 1/8	
1 5/8	5.00	12.50	12	7 1/2		2 5/8	34.00	82.50	19 1/2	12 3/8	
1 3/4	5.25	13.25	12 1/8	7 5/8	2 11/16	36.00	88.75	20	12 7/8		
1 7/8	5.50	14.00	12 1/2	8	2 3/4	38.00	95.00	20 1/2	13 1/4		
					2 13/16	40.50	102.50	20 1/2	13 1/4		
1 9/2	5.75	14.75	14 1/8	8 1/2	2 7/8	43.00	110.00	21	13 3/4		
1 5/16	6.00	15.50	14 1/4	8 5/8	2 15/16	45.50	117.50	21	13 3/4		
1 1/2	6.25	16.25	14 3/8	8 3/4	3	48.00	125.00	22	14 5/8		

Sizes and dimensions not listed are special, subject to special prices.
Sixty-fourth Sizes 1 1/2 inches and smaller take list next larger size.
For enlarging cored, punched or drilled holes. Will not drill solid metal.

Four Groove Twist Drills or Reamers Straight Shank



No. 104C Carbon Steel
No. 404C "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/4			6 1/8	4 1/8	1 3/32	\$7.00	\$17.75	14 5/8	9 1/2
3/8			6 1/4	4 1/8	1 7/16	7.50	18.50	14 3/4	9 5/8
5/16			6 3/8	4 1/8	1 5/8	8.00	19.25	14 7/8	9 3/4
3/8			6 1/2	4 1/4	1 1/2	8.50	20.00	15	9 7/8
7/16			6 3/4	4 1/4	1 3/4	9.00	20.75	15 1/8	10
1/2			7	4 3/8	1 9/16	9.50	21.50	15 1/4	10 1/8
5/8			7 1/4	4 5/8	1 3/2	10.00	22.25	15 3/8	10 1/4
3/4			7 1/2	4 7/8	1 5/8	10.50	23.00	15 1/2	10 3/8
7/8			7 3/4	5	1 3/2	11.00	23.75	15 5/8	10 1/2
1	\$1.50	\$3.00	8	5 1/4	1 11/16	11.50	24.50	15 3/4	10 5/8
1 1/8	1.60	3.15	8 1/4	5 3/8	1 3/2	12.00	25.50	15 7/8	10 3/4
1 1/4	1.70	3.25	8 1/2	5 5/8	1 3/4	12.50	26.50	16	10 7/8
1 1/2	1.80	3.50	8 3/4	5 3/4	1 3/2	13.25	27.50	16 1/8	10 1/8
1 3/4	1.90	3.75	9	5 7/8	1 5/8	14.00	28.50	16 1/4	10 1/4
1 7/8	2.00	4.00	9 1/4	6	1 3/2	14.75	29.50	16 3/8	10 5/8
2	2.10	4.25	9 1/2	6 3/16	1 7/8	15.50	30.50	16 1/2	10 1/2
2 1/8	2.25	4.65	9 3/4	6 3/8	1 3/2	16.25	31.50	16 1/2	10 1/2
2 1/4	2.40	5.00	9 7/8	6 1/2	1 5/8	17.00	32.50	16 1/2	10 1/2
2 3/8	2.55	5.40	10	6 5/8	1 3/2	17.75	33.50	16 1/2	10 1/2
2 1/2	2.70	5.75	10 1/4	6 3/4	2	18.50	34.50	16 1/2	10 1/2
2 3/4	2.85	6.15	10 1/2	7	2 1/32	19.25	36.00	16 1/2	10 1/2
2 7/8	3.00	6.50	10 5/8	7	2 1/16	20.00	37.50	17	10 3/8
3	3.15	7.00	10 3/4	7 1/8	2 3/16	21.50	40.50	17	10 3/8
3 1/8	3.30	7.50	10 7/8	7 1/8	2 3/8	23.00	43.75	17	10 3/8
3 1/4	3.45	8.00	11	7 3/16	2 1/4	24.50	47.50	17 1/2	10 7/8
3 1/2	3.60	8.50	11 1/4	7 5/16	2 5/16	26.00	52.50	17 1/2	10 7/8
3 3/4	3.75	9.00	11 1/2	7 3/8	2 3/8	27.50	60.00	18	11 3/8
3 7/8	4.00	9.50	11 3/4	7 5/8	2 7/16	29.00	65.00	18 1/2	11 7/8
4	4.25	10.25	11 7/8	7 7/8	2 1/2	30.50	70.00	19	12 3/8
4 1/8	4.50	11.00	12	8	2 9/16	32.00	76.25	19 1/4	12 5/8
4 1/4	4.75	11.75	12 1/4	8 1/8	2 5/8	34.00	82.50	19 1/2	12 7/8
4 1/2	5.00	12.50	12 1/2	8 1/8	2 1/2	36.00	88.75	20	13 3/8
4 3/4	5.25	13.25	12 3/4	8 1/2	2 3/4	38.00	95.00	20 1/2	13 7/8
4 7/8	5.50	14.00	13	9 1/8	2 5/8	40.50	102.50	20 1/2	13 7/8
5	5.75	14.75	13 1/4	9 1/4	2 7/8	43.00	110.00	21	14 3/8
5 1/8	6.00	15.50	13 1/2	9 3/8	2 5/8	45.50	117.50	21	14 3/8
5 1/4	6.25	16.25	13 3/4	9 1/2	3	48.00	125.00	22	15 3/8
5 1/2	6.50	17.00	14 1/2						

Sizes and dimensions not listed are special, subject to special prices.

Sixty-fourth Sizes 1 1/2 inches and smaller take list next larger size.

Drills 1 3/4 in. to 3 in. have shanks 1 3/4 inches diameter by 6 inches long.

For enlarging cored, punched or drilled holes. Will not drill solid metal.

Machine Countersinks

Fitting Blacksmiths' Drill Presses

**109F**
 Shank $\frac{1}{2}$ in. diameter by
 $2\frac{1}{4}$ in. long.
109G
 Shank .648 diameter ($\frac{41}{64}$) in.
 by $2\frac{1}{4}$ in. long.

Diameter Ins.	Price per Dozen	Diameter Ins.	Price per Dozen
$\frac{1}{2}$	\$ 7.25	$\frac{1}{2}$	\$ 7.25
$\frac{9}{16}$	8.70	$\frac{9}{16}$	8.70
$\frac{5}{8}$	9.35	$\frac{5}{8}$	9.35
$\frac{3}{4}$	12.25	$\frac{3}{4}$	12.25
$\frac{7}{8}$	14.00	$\frac{7}{8}$	14.00
1	15.75	1	15.75

The included angle at point is 60°.

Will furnish 80° angle when specified.

The included angle of point for machine and wood screws is 82° and tire bolts 60°.

Unless otherwise specified, will always furnish 60° and shanks $\frac{1}{2}$ inch in diameter.

Five Flute Countersink

**Taper Shank****No. 102F Carbon Steel****No. 402F "Diamond" High Speed****Straight Shank****No. 104F Carbon Steel****No. 404F "Diamond" High Speed**

These Countersinks are used on Plow Shares, Cultivator Shovels, Drill Points and other steel shapes, where the bolt holes are punched square, or for key head bolts and it is necessary to countersink to let the round head of the bolt in flush.

Prices quoted on application.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Drill and Countersink Combined



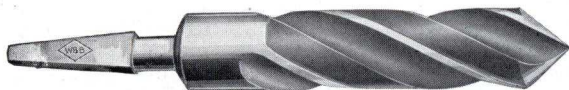
No. 114 Carbon Steel

No. 414 High Speed

Size, New Number	Size, Old Number	Price Per Dozen		Diam. of Body Ins.	Diameter of Drill Ins.
		Carbon Steel	High Speed		
C2	EA	\$2.25	\$6.00	$\frac{13}{64}$	$\frac{1}{16}$ and $\frac{1}{16}$
D1	D	2.50	6.00	$\frac{15}{64}$	.49 and .49
D2	DA	2.50	6.00	$\frac{15}{64}$	.45 and .45
E1	C	2.75	6.00	.302	$\frac{3}{32}$ and $\frac{3}{32}$
E2	B	2.75	6.00	.302	$\frac{1}{8}$ and $\frac{1}{8}$
F1	F	3.50	9.00	$\frac{7}{16}$	$\frac{5}{32}$ and $\frac{5}{32}$
F2	G	3.50	9.00	$\frac{7}{16}$	$\frac{3}{16}$ and $\frac{3}{16}$
J11	L	4.60	12.00	$\frac{1}{2}$	$\frac{7}{32}$ and $\frac{7}{32}$
J12	M	4.60	12.00	$\frac{1}{2}$	$\frac{9}{32}$ and $\frac{9}{32}$
M11	..	7.25	18.00	$\frac{5}{8}$	$\frac{7}{32}$ and $\frac{7}{32}$
M12	..	7.25	18.00	$\frac{5}{8}$	$\frac{9}{32}$ and $\frac{9}{32}$

The angle of Countersink is 60°. Special sizes and angles made to order. Packed one dozen of a size in a box.

Bit Stock Countersink



No. 109A

Diameter, Ins.	Length, Over All, Ins.	Price, Each
$\frac{3}{8}$	4 $\frac{1}{4}$	\$0.50
$\frac{1}{2}$	4 $\frac{1}{4}$	.60
$\frac{5}{8}$	4 $\frac{1}{4}$	.75
$\frac{3}{4}$	5	.90
$\frac{7}{8}$	5	1.05
1	5	1.20

The included angle at point is 82°. Special angles made to order.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Straight Shank Twist Drills—For Wood



No. 113

Diameter Ins.	Price per Dozen	Length Over All, Ins.	Length of Twist, Ins.	Diameter Ins.	Price per Dozen	Length Over All, Ins.	Length of Twist, Ins.
1/16	\$1.60	2 1/2	1 1/4	1 1/8	\$ 6.00	5	3 5/8
3/32	1.70	2 3/4	1 1/2	1 3/16	7.00	5 1/4	3 3/4
1/8	1.80	3	1 5/8	7/16	8.50	5 1/2	4 1/16
5/32	1.90	3 1/4	2 3/32	1 1/2	10.00	5 3/4	4 9/32
3/16	2.25	3 1/2	2 5/16	1 1/2	12.00	6	4 1/2
7/32	2.75	3 3/4	2 1/2	1 1/2	12.50	6	4 1/2
1/4	3.25	4	2 3/4	9/16	13.00	6	4 1/2
9/32	3.80	4 1/4	2 3/4	1 1/2	13.50	6	4 1/2
5/16	4.35	4 1/2	3 3/16	1 1/2	14.00	6	4 1/2
11/32	5.05	4 3/4	3 1/2	.....	.....	.....	.....

Prentice Machine Bits—For Wood



No. 108C

Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.
1/8	\$0.50	5 1/8	2	2 3/32	\$1.90	9 1/2	6 1/2
5/32	.55	5 3/8	2 1/4	3/4	2.00	9 3/4	6 3/4
3/16	.60	5 5/8	2 1/2	2 5/32	2.10	9 7/8	6 7/8
7/32	.65	5 7/8	2 3/4	1 1/2	2.20	10	7
1/4	.70	6 1/8	3 3/16	2 1/2	2.40	10 1/4	7 1/4
9/32	.75	6 1/4	3 5/16	7/8	2.60	10 1/2	7 7/16
5/16	.80	6 3/8	3 7/16	2 9/32	2.80	10 5/8	7 9/16
11/32	.85	6 1/2	3 9/16	1 1/2	3.00	10 3/4	7 11/16
3/8	.90	6 3/4	3 13/16	3 1/2	3.25	10 7/8	7 13/16
1 1/32	.95	7	4 1/16	1	3.50	11	7 15/16
7/16	1.00	7 1/4	4 5/16	1 1/16	4.00	11 1/4	8 1/8
1 1/32	1.10	7 1/2	4 9/16	1 1/8	4.50	11 3/4	8 5/8
1 1/2	1.20	7 3/4	4 13/16	1 3/16	5.00	12	8 7/8
1 1/4	1.30	8	5 1/16	1 1/4	5.50	12 1/2	9 3/8
1 3/8	1.40	8 1/4	5 5/16	1 5/16	6.00	12 1/2	9 3/8
1 1/2	1.50	8 1/2	5 9/16	1 3/8	6.50	12 1/2	9 3/8
1 3/4	1.60	8 3/4	5 13/16	1 1/2	7.50	12 1/2	9 3/8
2 1/32	1.70	9	6	1 1/2	8.50	12 1/2	9 3/8
1 1/2	1.80	9 1/4	6 1/4	.....	.....	.....	.....

Shanks 1/2 x 2 1/2 inches. Furnished with shank not slabbed, when so specified. Will fit blacksmith's drill presses.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

W&B

Established 1854
Whitman & Barnes

W&B

Taper Shank Machine Bits—For Wood**No. 108B**

Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Shank Taper
$\frac{1}{8}$	\$0.50	$5\frac{1}{8}$	$2\frac{1}{8}$	No. 1	$\frac{3}{32}$	\$1.90	$9\frac{1}{2}$	$5\frac{3}{4}$	No. 2
$\frac{3}{16}$	.55	$5\frac{3}{8}$	$2\frac{1}{8}$		$\frac{3}{16}$	2.00	$9\frac{3}{4}$	6
$\frac{1}{4}$	.60	$5\frac{3}{4}$	$2\frac{1}{8}$		$\frac{1}{4}$	2.10	$9\frac{7}{8}$	$6\frac{1}{8}$
$\frac{5}{16}$	.65	$5\frac{7}{8}$	$2\frac{1}{8}$		$\frac{5}{16}$	2.20	10	$6\frac{1}{4}$
$\frac{3}{8}$	.70	$6\frac{1}{8}$	3		$\frac{3}{8}$	2.40	$10\frac{1}{4}$	$6\frac{1}{2}$
$\frac{7}{16}$	.75	$6\frac{3}{4}$	$3\frac{1}{16}$		$\frac{7}{16}$	2.60	$10\frac{1}{2}$	$6\frac{3}{8}$
$\frac{1}{2}$	.80	$6\frac{3}{4}$	$3\frac{1}{8}$		$\frac{1}{2}$	2.80	$10\frac{3}{8}$	$6\frac{3}{4}$
$\frac{9}{16}$	.85	$6\frac{1}{2}$	$3\frac{1}{16}$		$\frac{9}{16}$	3.00	$10\frac{3}{4}$	$6\frac{1}{4}$
$\frac{5}{8}$	.90	$6\frac{3}{4}$	$3\frac{1}{8}$		$\frac{5}{8}$	3.25	$10\frac{7}{8}$	$6\frac{3}{8}$
$\frac{3}{4}$	.95	7	$3\frac{1}{16}$		$\frac{3}{4}$	3.50	11	$6\frac{1}{2}$
$\frac{7}{8}$	1.00	$7\frac{1}{4}$	$4\frac{1}{16}$	No. 3	1	4.00	$6\frac{3}{4}$		
$\frac{15}{16}$	1.10	$7\frac{1}{2}$	$4\frac{1}{8}$		$1\frac{1}{16}$	4.50	$11\frac{1}{4}$	$7\frac{1}{4}$	
$1\frac{1}{16}$	1.20	$7\frac{3}{4}$	$4\frac{1}{8}$		$1\frac{1}{8}$	5.00	12	$7\frac{1}{2}$	
$1\frac{1}{8}$	1.30	8	$4\frac{1}{8}$		$1\frac{1}{4}$	5.50	$12\frac{1}{2}$	8	
$1\frac{1}{4}$	1.40	$8\frac{1}{4}$	$5\frac{1}{8}$		No. 4	$1\frac{1}{8}$	6.00	$14\frac{1}{4}$	
$1\frac{3}{8}$	1.50	$8\frac{1}{2}$	$4\frac{7}{8}$			$1\frac{3}{8}$	6.50	$14\frac{1}{2}$	$8\frac{5}{8}$
$1\frac{1}{2}$	1.60	$8\frac{3}{4}$	$5\frac{1}{16}$	$1\frac{1}{2}$		7.50	$14\frac{3}{4}$	$9\frac{1}{8}$	
$1\frac{5}{8}$	1.70	9	$6\frac{1}{16}$	$1\frac{5}{8}$		8.50	15	$9\frac{3}{8}$	
$1\frac{3}{4}$	1.80	$9\frac{1}{4}$	$5\frac{1}{2}$	$1\frac{3}{4}$					
2				2					

Straight Shank Machine Bits—For Wood**No. 108**

Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each	Length Over All Ins.	Length of Twist Ins.
$\frac{1}{8}$	\$0.40	*3	$1\frac{1}{8}$	$\frac{3}{32}$	\$1.80	$7\frac{1}{4}$	$5\frac{1}{2}$
$\frac{3}{16}$	.45	$3\frac{1}{4}$	$2\frac{1}{8}$	$\frac{3}{16}$	1.90	$7\frac{1}{2}$	$5\frac{1}{4}$
$\frac{1}{4}$	.50	$3\frac{1}{2}$	$2\frac{1}{8}$	$\frac{1}{4}$	2.00	$7\frac{3}{4}$	$5\frac{1}{8}$
$\frac{5}{16}$	.55	$3\frac{3}{4}$	$2\frac{1}{8}$	$\frac{5}{16}$	2.10	8	$6\frac{1}{8}$
$\frac{3}{8}$	.60	4	$2\frac{3}{4}$	$\frac{3}{8}$	2.30	$8\frac{1}{4}$	$6\frac{1}{4}$
$\frac{7}{16}$	.65	$4\frac{1}{4}$	$2\frac{1}{2}$	$\frac{7}{16}$	2.50	$8\frac{1}{2}$	$6\frac{1}{4}$
$\frac{1}{2}$	.70	$4\frac{1}{2}$	$2\frac{1}{2}$	$\frac{1}{2}$	2.70	$8\frac{3}{4}$	$6\frac{3}{8}$
$\frac{9}{16}$	.75	$4\frac{3}{4}$	$2\frac{1}{2}$	$\frac{9}{16}$	2.90	9	$6\frac{1}{2}$
$\frac{5}{8}$	.80	5	$3\frac{5}{8}$	$\frac{5}{8}$	3.00	$9\frac{1}{4}$	7
$\frac{3}{4}$	.85	$5\frac{1}{4}$	$3\frac{1}{2}$	1	3.25	$9\frac{1}{2}$	$7\frac{3}{8}$
$\frac{7}{8}$	.90	$5\frac{1}{2}$	$4\frac{1}{8}$	$1\frac{1}{16}$	3.75	$11\frac{1}{4}$	$8\frac{1}{2}$
$1\frac{1}{16}$	1.00	$5\frac{3}{4}$	$4\frac{1}{8}$	$1\frac{1}{8}$	4.25	$11\frac{3}{4}$	$8\frac{7}{8}$
$1\frac{1}{8}$	1.10	6	$4\frac{1}{8}$	$1\frac{1}{4}$	4.75	12	9
$1\frac{1}{4}$	1.20	$6\frac{1}{8}$	$4\frac{1}{8}$	$1\frac{1}{2}$	5.25	$12\frac{1}{2}$	$9\frac{1}{8}$
$1\frac{3}{8}$	1.30	$6\frac{1}{4}$	$4\frac{1}{8}$	$1\frac{3}{8}$	5.75	$12\frac{3}{4}$	$9\frac{3}{8}$
$1\frac{1}{2}$	1.40	$6\frac{3}{8}$	$4\frac{1}{8}$	$1\frac{1}{2}$	6.25	$12\frac{1}{2}$	$9\frac{3}{8}$
$1\frac{5}{8}$	1.50	$6\frac{1}{2}$	$4\frac{7}{8}$	$1\frac{5}{8}$	7.25	$12\frac{1}{2}$	$9\frac{3}{8}$
$1\frac{3}{4}$	1.60	$6\frac{3}{4}$	$5\frac{1}{8}$	$1\frac{3}{4}$	8.25	$12\frac{1}{2}$	$9\frac{3}{8}$
2	1.70	7	$5\frac{1}{8}$	2			

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Wood Boring Brace Drills



No. 109B

Size by 32nds	Price per Dozen	Length Over All, Ins.	Size by 32nds.	Price per Dozen	Length Over All, Ins.
1/16	\$ 3.25	3 1/2	9/16	\$11.00	8 7/8
3/32	3.25	3 3/4	1 1/8	11.75	9 3/8
1/8	3.25	4 1/4	5/8	12.50	9 3/8
5/32	3.50	4 7/8	11/16	14.50	9 3/8
3/16	4.00	5 1/2	3/4	16.50	9 5/8
7/32	4.50	6 1/8	13/16	18.50	9 5/8
1/4	5.00	6 5/8	7/8	21.00	9 5/8
9/32	5.50	7 1/8	15/16	24.00	9 5/8
5/16	6.00	7 3/8	1	27.00	9 5/8
11/32	6.50	7 5/8	1 1/16	30.00	9 5/8
3/8	7.00	7 7/8	1 1/8	33.00	9 5/8
13/32	7.50	8 1/8	1 3/16	37.00	9 5/8
7/16	8.00	8 3/8	1 1/4	41.00	9 5/8
15/32	8.75	8 5/8	1 5/16	45.00	9 5/8
1/2	9.50	8 7/8	1 3/8	50.00	9 5/8
17/32	10.25	8 7/8			

Packed: Sizes Nos. 2 to 19, one dozen; Nos. 20 to 32, one-half dozen of a size in a box.

For Wood Boring Brace Drills in Sets, see page 38.

Extra Length Wood Boring Brace Drills



No. 109C

Bell Hangers and Electricians Bits

Size by 32nds	12 inch per Dozen	18 inch per Dozen	24 inch per Dozen	30 inch per Dozen	36 inch per Dozen
3/16	\$ 7.50	\$10.00	\$12.50	\$15.00	\$17.50
1/4	8.00	10.50	13.00	15.50	18.00
5/16	8.75	11.00	13.50	16.00	18.50
3/8	9.50	12.00	14.50	17.00	19.50
7/16	10.50	13.00	15.50	18.00	20.50
1/2	12.00	14.50	17.00	19.50	22.00
9/16	13.50	16.00	18.50	21.00	23.50
5/8	15.25	17.75	20.25	22.75	25.25
11/16	17.00	19.50	22.00	24.50	27.00
3/4	19.00	21.50	24.00	26.50	29.00
13/16	21.00	23.50	26.00	28.50	31.00
7/8	23.00	25.50	28.00	30.50	33.00
15/16	25.00	27.50	30.00	32.50	35.00
1	27.50	30.00	32.50	35.50	38.00
1 1/16	30.50	33.00	35.50	39.00	42.00
1 1/8	33.00	36.00	39.00	42.50	47.00

Packed: Sizes No. 24 and smaller, one-half dozen; Nos. 26 and 28, one-third dozen; Nos. 30 and 32, one-sixth dozen of a size in a box.

EXTRA CHARGE FOR LESS THAN FULL BOX

Bit Stock Drills

For Metal or Wood



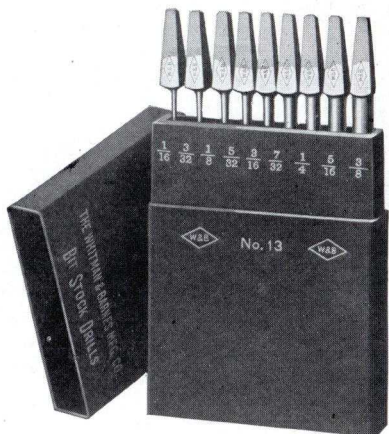
No. 109

Diam. Ins.	Price per Dozen	Length Over All Ins.	Diam. Ins.	Price per Dozen	Length Over All Ins.
$\frac{1}{16}$	\$2.50	$3\frac{1}{2}$	$\frac{1}{2}$	\$13.00	7
$\frac{5}{64}$	2.60	$3\frac{1}{2}$	$\frac{1}{2}$	14.25	$7\frac{1}{4}$
$\frac{3}{32}$	2.70	$3\frac{3}{4}$	$\frac{9}{16}$	15.50	$7\frac{1}{2}$
$\frac{1}{8}$	2.85	4	$\frac{5}{8}$	16.75	$7\frac{1}{2}$
$\frac{3}{16}$	3.00	4	$\frac{3}{4}$	18.00	$7\frac{1}{2}$
$\frac{1}{4}$	3.25	$4\frac{1}{4}$	$\frac{7}{8}$	19.50	$7\frac{1}{2}$
$\frac{5}{16}$	3.50	$4\frac{1}{4}$	$\frac{1}{2}$	21.00	$7\frac{1}{2}$
$\frac{3}{8}$	3.75	$4\frac{1}{2}$	$\frac{3}{4}$	22.50	$7\frac{1}{2}$
$\frac{1}{2}$	4.00	$4\frac{1}{2}$	$\frac{1}{2}$	24.00	$7\frac{1}{2}$
$\frac{5}{8}$	4.25	$4\frac{3}{4}$	$\frac{3}{4}$	25.50	$7\frac{1}{2}$
$\frac{3}{4}$	4.50	$4\frac{3}{4}$	$\frac{1}{2}$	27.00	$7\frac{1}{2}$
$\frac{7}{8}$	4.75	5	$\frac{3}{4}$	28.50	$7\frac{1}{2}$
1	5.00	5	$\frac{7}{8}$	30.00	$7\frac{1}{2}$
$\frac{1}{16}$	5.50	$5\frac{1}{4}$	$\frac{1}{2}$	31.50	$7\frac{1}{2}$
$\frac{5}{64}$	6.00	$5\frac{1}{4}$	$\frac{3}{4}$	33.00	$7\frac{1}{2}$
$\frac{3}{32}$	6.50	$5\frac{1}{2}$	$\frac{1}{2}$	34.50	$7\frac{1}{2}$
$\frac{1}{8}$	7.00	$5\frac{1}{2}$	$\frac{3}{4}$	36.00	$7\frac{1}{2}$
$\frac{5}{16}$	7.50	$5\frac{3}{4}$	$\frac{1}{2}$	39.00	$7\frac{1}{2}$
$\frac{3}{8}$	8.00	$5\frac{3}{4}$	$\frac{3}{4}$	42.00	$7\frac{1}{2}$
$\frac{1}{2}$	8.50	6	$\frac{1}{2}$	45.00	$7\frac{1}{2}$
$\frac{5}{8}$	9.25	$6\frac{1}{4}$	$\frac{3}{4}$	48.00	$7\frac{1}{2}$
$\frac{3}{4}$	10.50	$6\frac{1}{2}$	$\frac{1}{4}$		
$\frac{7}{8}$	11.75	$6\frac{3}{4}$			

Packed: Sizes $\frac{1}{16}$ to $\frac{9}{16}$ in., one dozen; $\frac{1}{2}$ to 1 in., one-half dozen of a size in a box.

For Bit Stock Drills In Sets see page 38.

EXTRA CHARGE FOR LESS THAN FULL BOX



“W & B” Bit Stock Drill Sets

Packed in flat Leatherette Cases which fit the pocket and keep the Drills in good condition. Size of each Drill stamped on case in gold.

Set No. 13 Contains One Each—Price Per Set \$4.85

$\frac{1}{16}$	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
----------------	----------------	---------------	----------------	----------------	----------------	---------------	----------------	---------------

Set No. 13A Contains One Each—Price Per Set \$4.35

$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
---------------	----------------	----------------	----------------	---------------	----------------	---------------

Set No. 13B Contains One Each—Price Per Set \$6.40

$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
---------------	----------------	----------------	----------------	---------------	----------------	---------------	----------------	---------------

“W & B” Wood Boring Brace Drill Sets

Packed in Flat, Black Leatherette Boxes.

Size of each Drill stamped on case in Gold.

Set No. 14 Contains One Each—

$\frac{1}{16}$	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
----------------	----------------	---------------	----------------	----------------	----------------	---------------	----------------	---------------

Price Per Set \$4.50

Set No. 14A Contains One Each—

$\frac{1}{8}$	$\frac{5}{32}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
---------------	----------------	----------------	----------------	---------------	----------------	---------------

Price Per Set \$3.70



ALWAYS GIVE LIST NUMBER WHEN ORDERING

Drill Cases



Cut Illustrates No. 1 Case

No. 1 (37 inches wide by 44 inches high.)

Will hold Wire Drills Nos. 1 to 80—Jobbers' Drills $\frac{1}{16}$ to $\frac{1}{2}$ by 64ths—Bit Stock Drills $\frac{3}{32}$ to $\frac{1}{2}$ by 32nds—Taper or Straight Shank Drills $\frac{1}{4}$ to $1\frac{1}{4}$ by 32nds. Has two large drawers for Chucks, Sleeves, etc.

No. 2 (38 inches wide by 83 inches high.)

Will hold Wire Drills Nos. 1 to 80—Jobbers' Drills $\frac{1}{16}$ to $\frac{1}{2}$ inch by 64ths—Bit Stock Drills $\frac{3}{32}$ to $\frac{1}{2}$ by 32nds—Straight Shank or Taper Shank Drills $\frac{1}{4}$ to 1 inch by 64ths—Straight Shank or Taper Shank Drills 1 inch to $2\frac{1}{2}$ inch by 32nds. Has two drawers for Chucks, etc.

No. 4 (22 inches wide by 25 inches high.)

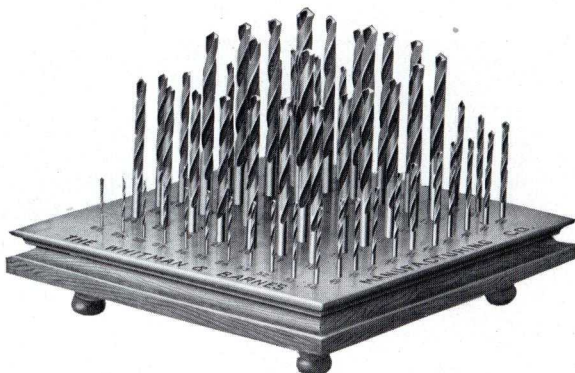
Will hold Wire Drills Nos. 1 to 60 inclusive and Jobbers' Drills $\frac{1}{16}$ to $\frac{1}{2}$ by 64ths. Has wooden trays. Two small drawers. One long drawer.

No. 5 (28 inches wide by 27 inches high.)

Will hold Wire Drills Nos. 1 to 65—Jobbers' Drills $\frac{1}{16}$ to $\frac{1}{2}$ by 64ths—Straight Shank or Taper Shank Drills $\frac{1}{4}$ to $\frac{1}{2}$ by 64ths—Straight Shank or Taper Shank Drills $\frac{1}{2}$ to 1 inch by 32nds. Has wooden trays and one drawer for Chucks, Sleeves, etc.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

“Diamond” Twist Drill Sets



Set		Mounted	Unmounted
No. 1	Taper Shank Drills, $\frac{1}{4}$ " to 1", inc., varying by 16ths. (See Page 8).....	.....	\$22.40
No. 2	Taper Shank Drills, $\frac{3}{8}$ " to $1\frac{1}{4}$ ", inc., by 16ths. (See Pages 8 and 9).....	.....	40.10
No. 3	Taper Shank Drills, $\frac{3}{8}$ " to $\frac{3}{4}$ ", inc., by 32nds; and $\frac{3}{16}$ " to $1\frac{1}{4}$ " inc., by 16ths. (See Pages 8 and 9).....	.....	48.50
No. 4	Taper Shank Drills, Set $\frac{3}{8}$ " to $\frac{3}{4}$ ", inc., by 32nds; and $\frac{3}{16}$ " to 2", inc., by 16ths. (See Pages 8 and 9).....	.....	186.00
No. 5	Jobbers Straight Shank Drills, $\frac{1}{16}$ " to $\frac{1}{2}$ ", inc., by 64ths. (See Page 16).....	\$15.00	12.50
No. 6	Jobbers Straight Shank Drills, $\frac{1}{16}$ " to $\frac{1}{2}$ ", inc., by 32nds. (See Page 16).....	9.50	7.00
No. 7	Wire Gauge Drills, Set Nos. 1 to 60, inc., and Jobbers Drills $\frac{1}{4}$ " to $\frac{3}{8}$ " inc., by 32nds, (See Pages 16-18).....	15.75	13.25
No. 8	Wire Gauge Drills, Nos. 1 to 60 Wire Gauge, inc. (See Page 18).....	13.35	10.85
No. 9	Wire Gauge Drills, alternate Nos. 1 to 59, inc. (See Page 18).....	8.50	6.00
No. 12	Machine Bits $\frac{1}{8}$ " to $\frac{1}{2}$ ", inc., varying by 32nds. (See Page 35).....	11.17	9.50

Wood Blocks for Mounting

Number 5, 6, 7, 8 and 9 Sets.....	\$2.50 each
Number 12 Sets.....	1.67 each

ALWAYS GIVE LIST NUMBER WHEN ORDERING

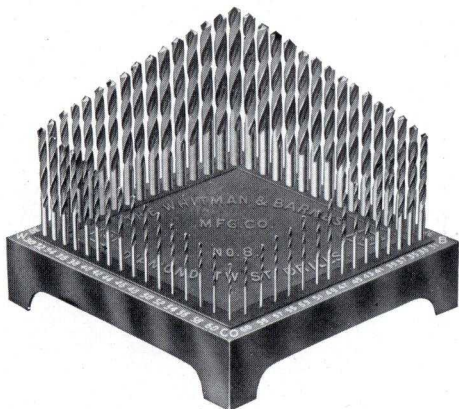
Jewelers' Sets

No. 10. Case and Drills No. 30 ($\frac{1}{8}$ inch) to No. 65 Steel Wire Gauge.

Price, per set, \$9.50. Case only, each \$3.50.



"Diamond" Twist Drill Sets



Mounted on handsome metal stands, copperized finish. Each Drill fits in a hole of corresponding size in the stand. On the 5A Stand, the 32nd sizes are on one side and the 64th sizes on the other.

On the 8A Stand the even numbers are on one side and the odd numbers on the other.

No. 5A Set contains Jobbers' Drills, $\frac{1}{16}$ in. to $\frac{1}{2}$ in., by 64ths.
Price, per set, \$16.00. Unmounted, \$12.50.

No. 5B Set contains High Speed Jobbers' Drills $\frac{1}{16}$ to $\frac{1}{2}$ in. inclusive, by 64ths without stand. Price, per set, \$26.20.

No. 8A Set contains Wire Drills, Nos. 1 to 60, inclusive.
Price, per set, \$14.35. Unmounted, \$10.85.

No. 8B Set High Speed Wire Drills, Nos. 1 to 60 inclusive.
Price, per set, \$34.10. Unmounted, \$30.60.

Metal Stands only, Price, Each, \$3.50.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Straight Fluted Drills

(Farmer Drills)



Jobbers' Length

No. **105A** Carbon Steel

No. **405A** "Diamond" High Speed

Carbon drill Dimensions, List Prices and Packing same as No. **105**, page 16. High speed drills are special. Prices on application.



No. **107A** Wire Gauge Carbon Steel

No. **407A** Wire Gauge "Diamond" High Speed

Carbon drill Dimensions, List Prices and Packing same as No. **107**, pages 18 and 19. High speed drills are special. Prices on application.

These drills are especially adapted for work in brass, copper, and other soft metals, as they will not run ahead nor "hog in."

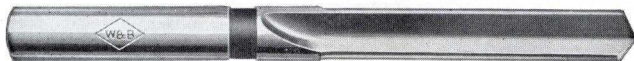


Taper Shank

No. **102A** Carbon Steel

No. **402A** "Diamond" High Speed

Carbon drill Dimensions and List Prices same as No. **102**, pages 8, 9, 10 and 11. High speed drills are special. Prices on application.



Straight Shank, Taper Length

No. **104A** Carbon Steel

No. **404A** "Diamond" High Speed

Carbon drill Dimensions and List Prices same as No. **104**, pages 13, 14 and 15. High speed drills are special. Prices on application.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

W&B**Whitman & Barnes**

Established 1854

W&B

Left Hand Drills

With Taper Shank



Same List and Dimensions as Right Hand Drills, pages 8, 9, 10 and 11, but special discount.

With Straight Shank



Same List and Dimensions as Right Hand Drills, pages 13, 14 and 15, but special discount.

Single Twist Drills

For Wood



- No. **108E** Taper Shank
- No. **108D** Straight Shank
- No. **108F** Jobbers'
- No. **108G** Wire

Furnished with any shank desired and in any style or size.
Specially adapted for use in the manufacture of Shovel Handles, Wheelbarrows, etc.

These drills are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Millimeter Size Twist Drills—Taper Shank



No. 102E Carbon Steel

Diam. M. M.	Price Each	Diam. in Decimals of 1 In.	Length M. M.	Length of Twist M. M.	Shank Taper	Diam. M. M.	Price Each	Diam. in Decimals of 1 In.	Length M. M.	Length of Twist M. M.	Shank Taper
3.	\$0.45	.1181	116	43	No. 1	21	\$2.40	.8267	260	163	No. 2
3.5	.45	.1378	119	46		21.5	2.60	.8464	267	170	
4	.50	.1575	124	51		22	2.60	.8661	267	170	
4.5	.50	.1771	129	56		22.5	2.80	.8858	270	173	
5	.55	.1968	146	71		23	2.80	.9055	270	173	
5.5	.55	.2165	152	76							
6	.60	.2362	155	76		23.5	3.00	.9252	273	159	No. 3
6.5	.65	.2559	159	79		24	3.25	.9449	273	159	
7	.65	.2756	159	79		24.5	3.25	.9646	276	162	
7.5	.70	.2953	162	78		25	3.50	.9843	279	165	
8	.75	.3149	162	78		25.5	3.75	1.0039	282	168	
8.5	.75	.3346	165	81		26	3.75	1.0236	282	168	
9	.80	.3543	165	81	26.5	4.00	1.0433	286	172		
9.5	.80	.3740	172	87	27	4.25	1.0629	286	172		
10	.90	.3937	178	94	27.5	4.25	1.0827	292	178		
10.5	1.00	.4134	184	100	28	4.50	1.1024	292	178		
11	1.00	.4330	184	100	28.5	4.50	1.1220	298	184		
11.5	1.10	.4527	191	107	29	4.75	1.1417	302	187		
12	1.20	.4724	191	107	29.5	5.00	1.1614	305	190		
12.5	1.20	.4921	197	113	30	5.00	1.1811	305	190		
13	1.30	.5118	197	113	30.5	5.25	1.2008	308	194		
13.5	1.40	.5315	203	119	31	5.50	1.2205	308	194		
14	1.40	.5512	210	125	31.5	5.50	1.2401	317	203		
					32	5.75	1.2598	317	203		
14.5	1.50	.5708	216	132	No. 2	32.5	5.75	1.2795	359	219	No. 4
15	1.50	.5905	216	119		33	6.00	1.2992	362	222	
15.5	1.60	.6102	222	125		33.5	6.25	1.3190	362	222	
16	1.70	.6299	222	125		34	6.25	1.3386	365	225	
16.5	1.70	.6496	229	132		34.5	6.50	1.3583	365	225	
17	1.80	.6693	229	132		35	7.00	1.3779	368	229	
17.5	1.90	.6890	241	144		35.5	7.00	1.3977	372	232	
18	1.90	.7086	241	144		36	7.50	1.4173	372	232	
18.5	2.00	.7283	247	151		36.5	7.50	1.4370	375	235	
19	2.00	.7480	247	151		37	8.00	1.4567	378	238	
19.5	2.10	.7677	251	154		37.5	8.50	1.4764	378	238	
20	2.20	.7874	251	154							
20.5	2.20	.8071	254	157							

Continued on next page

USE "W & B" SOCKETS AND SLEEVES

Millimeter Size Twist Drills

Taper Shank (Continued)



No. 102E Carbon Steel

Diameter M. M.	Price Each	Diameter in Decimals of 1 in.	Length M. M.	Length of Twist M. M.	Shank Taper	Diameter M. M.	Price Each	Diameter in Decimals of 1 in.	Length M. M.	Length of Twist M. M.	Shank Taper
38	\$8.50	1.4961	381	241	No. 4	57	\$24.50	2.2441	445	260	No. 5
38.5	9.00	1.5157	381	241		57.5	25.25	2.2637	445	260	
39	9.50	1.5354	381	241		58	26.00	2.2835	445	260	
39.5	9.50	1.5551	387	248		58.5	26.00	2.3031	445	260	
40	10.00	1.5748	387	248		59	26.75	2.3228	445	260	
40.5	10.50	1.5945	387	248		59.5	26.75	2.3425	445	260	
41	10.50	1.6142	394	254		60	27.50	2.3622	457	269	
41.5	11.00	1.6338	394	254		60.5	28.25	2.3819	457	269	
42	11.00	1.6536	394	254		61	28.25	2.4015	457	269	
42.5	11.50	1.6733	400	260		61.5	29.00	2.4212	457	269	
43	12.00	1.6929	400	260		62	29.75	2.4409	470	283	
43.5	12.00	1.7126	400	260		62.5	29.75	2.4606	470	283	
44	12.50	1.7323	406	256		63	30.50	2.4803	483	292	
44.5	13.25	1.7519	406	256		63.5	30.50	2.5000	483	292	
45	13.25	1.7717	406	256		64	31.25	2.5197	483	292	
45.5	14.00	1.7914	406	256		64.5	32.00	2.5393	483	292	
46	14.00	1.8110	413	260		65	32.00	2.5591	489	298	
46.5	14.75	1.8307	413	260		65.5	33.00	2.5787	489	298	
47	15.50	1.8504	413	260		66	34.00	2.5984	495	302	
47.5	15.50	1.8701	419	267		66.5	34.00	2.6181	495	302	
48	16.25	1.8898	419	267	67	35.00	2.6378	495	302		
48.5	17.00	1.9094	419	267	67.5	36.00	2.6574	495	302		
49	17.00	1.9291	419	267	68	36.00	2.6772	508	314		
49.5	17.75	1.9488	419	264	68.5	37.00	2.6969	508	314		
50	17.75	1.9685	419	264	69	37.00	2.7165	521	324		
50.5	18.50	1.9882	419	264	69.5	38.00	2.7362	521	324		
					70	39.25	2.7559	521	324		
51	19.25	2.0079	419	244	70.5	39.25	2.7756	521	324		
51.5	19.25	2.0276	419	244	71	40.50	2.7952	521	324		
52	20.00	2.0473	432	257	71.5	41.75	2.8149	521	324		
52.5	20.75	2.0670	432	257	72	41.75	2.8347	521	324		
53	20.75	2.0866	432	257	72.5	43.00	2.8543	521	324		
53.5	21.50	2.1063	432	257	73	43.00	2.8740	533	333		
54	22.25	2.1259	432	257	73.5	44.25	2.8937	533	333		
54.5	22.25	2.1456	432	257	74	45.50	2.9134	533	333		
55	23.00	2.1654	432	257	74.5	45.50	2.9330	533	333		
55.5	23.00	2.1851	432	257	75	46.75	2.9527	533	333		
56	23.75	2.2047	432	257	75.5	48.00	2.9724	533	333		
56.5	24.50	2.2244	432	257	76	48.00	2.9921	559	355		

USE "W & B" SOCKETS AND SLEEVES

Millimeter Size Twist Drills

Straight Shank, Taper Length



No. 104E Carbon Steel

Diameter M. M.	Price Each	Diameter in Decimals of 1 inch	Length M. M.	Length of Twist M. M.	Diameter M. M.	Price Each	Diameter in Decimals of 1 inch	Length M. M.	Length of Twist M. M.
3	\$0.45	.1181	117	57	21.5	\$2.60	.8464	267	178
3.5	.45	.1378	133	70	22	2.60	.8661	267	178
4	.50	.1575	137	76	22.5	2.80	.8858	270	178
4.5	.50	.1771	140	83	23	2.80	.9055	270	178
5	.55	.1968	146	89	23.5	3.00	.9252	273	178
5.5	.55	.2165	152	102	24	3.25	.9449	273	178
6	.60	.2362	155	102	24.5	3.25	.9646	276	181
6.5	.65	.2559	155	102	25	3.50	.9842	279	182
7	.65	.2756	159	102	25.5	3.75	1.0039	282	186
7.5	.70	.2953	162	103	26	3.75	1.0236	282	186
8	.75	.3149	162	103	26.5	4.00	1.0433	286	187
8.5	.75	.3346	165	105	27	4.25	1.0629	286	187
9	.80	.3543	165	105	27.5	4.25	1.0827	292	194
9.5	.80	.3740	172	108	28	4.50	1.1024	292	194
10	.90	.3937	178	111	28.5	4.50	1.1220	298	200
10.5	1.00	.4134	184	117	29	4.75	1.1417	302	203
11	1.00	.4330	184	117	29.5	5.00	1.1614	305	206
11.5	1.10	.4527	191	124	30	5.00	1.1811	305	206
12	1.20	.4724	191	124	30.5	5.25	1.2008	308	206
12.5	1.20	.4921	197	127	31	5.50	1.2205	308	206
13	1.30	.5118	197	127	31.5	5.50	1.2401	317	216
13.5	1.40	.5315	203	133	32	5.75	1.2598	317	216
14	1.40	.5512	210	137	32.5	5.75	1.2795	359	232
14.5	1.50	.5708	216	143	33	6.00	1.2992	362	235
15	1.50	.5905	216	143	33.5	6.25	1.3190	362	235
15.5	1.60	.6102	222	146	34	6.25	1.3386	365	238
16	1.70	.6299	222	146	34.5	6.50	1.3583	365	238
16.5	1.70	.6496	229	149	35	7.00	1.3779	368	241
17	1.80	.6693	229	149	35.5	7.00	1.3977	372	241
17.5	1.90	.6890	241	157	36	7.50	1.4173	372	241
18	1.90	.7086	241	157	36.5	7.50	1.4370	375	244
18.5	2.00	.7283	247	162	37	8.00	1.4567	378	248
19	2.00	.7480	247	162	37.5	8.50	1.4764	378	248
19.5	2.10	.7677	251	165	38	8.50	1.4961	381	251
20	2.20	.7874	251	165	38.5	9.00	1.5157	381	251
20.5	2.20	.8071	254	168	39	9.50	1.5354	381	251
21	2.40	.8267	260	171	39.5	9.50	1.5551	387	257

Continued on next page

Can be furnished with Two-Grooved Shanks if required.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Millimeter Size Twist Drill

Straight Shank, Taper Length (Continued)



No. 104E Carbon Steel

Diam. M. M.	Price Each	Diameter in Decimals of 1 inch	Length M. M.	Length of Twist M. M.	Diam. M. M.	Price Each	Diameter in Decimals of 1 inch	Length M. M.	Length of Twist M. M.
40	\$10.00	1.5748	387	257	58.5	\$26.00	2.3031	445	293
40.5	10.50	1.5945	387	257	59	26.75	2.3228	445	293
41	10.50	1.6142	394	264	59.5	26.75	2.3425	445	293
41.5	11.00	1.6338	394	264	60	27.50	2.3622	457	305
42	11.00	1.6536	394	264	60.5	28.25	2.3819	457	305
42.5	11.50	1.6733	400	270	61	28.25	2.4015	457	305
43	12.00	1.6929	400	270	61.5	29.00	2.4212	457	305
43.5	12.00	1.7126	400	270	62	29.75	2.4409	470	318
44	12.50	1.7323	406	276	62.5	29.75	2.4606	470	318
44.5	13.25	1.7519	406	254	63	30.50	2.4803	483	331
45	13.25	1.7717	406	254	63.5	30.50	2.5000	483	331
45.5	14.00	1.7914	406	254	64	31.25	2.5197	483	331
46	14.00	1.8110	413	261	64.5	32.00	2.5393	483	331
46.5	14.75	1.8307	413	261	65	32.00	2.5591	489	337
47	15.50	1.8504	413	261	65.5	33.00	2.5787	489	337
47.5	15.50	1.8701	419	267	66	34.00	2.5984	495	343
48	16.25	1.8898	419	267	66.5	34.00	2.6181	495	343
48.5	17.00	1.9094	419	267	67	35.00	2.6378	495	343
49	17.00	1.9291	419	267	67.5	36.00	2.6574	495	343
49.5	17.75	1.9488	419	267	68	36.00	2.6772	508	356
50	17.75	1.9685	419	267	68.5	37.00	2.6969	508	356
50.5	18.50	1.9882	419	267	69	37.00	2.7165	521	369
51	19.25	2.0079	419	267	69.5	38.00	2.7362	521	369
51.5	19.25	2.0276	419	267	70	39.25	2.7559	521	369
52	20.00	2.0473	432	280	70.5	39.25	2.7756	521	369
52.5	20.75	2.0670	432	280	71	40.50	2.7952	521	369
53	20.75	2.0866	432	280	71.5	41.75	2.8149	521	369
53.5	21.50	2.1063	432	280	72	41.75	2.8347	521	369
54	22.25	2.1259	432	280	72.5	43.00	2.8543	521	369
54.5	22.25	2.1456	432	280	73	43.00	2.8740	533	381
55	23.00	2.1654	432	280	73.5	44.25	2.8937	533	381
55.5	23.00	2.1851	432	280	74	45.50	2.9134	533	381
56	23.75	2.2047	432	280	74.5	45.50	2.9330	533	381
56.5	24.50	2.2244	432	280	75	46.75	2.9527	533	381
57	24.50	2.2441	445	293	75.5	48.00	2.9724	533	381
57.5	25.25	2.2637	445	293	76	48.00	2.9921	559	407
58	26.00	2.2835	445	293	.....	.....	.....	.....	.....

Drills 44.5 to 76 M. M. diameter, have shanks 44.5 M. M. diameter by 152 M. M. long.

Can be furnished with Two-Grooved Shanks if required.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Millimeter Size Twist Drills

Straight Shank—Short Set or Jobbers' Length



No. 105E Carbon Steel

Diameter M. M.	Price per Dozen	Length Over All M. M.	Length of Twist M. M.	Diameter M. M.	Price per Dozen	Length Over All M. M.	Length of Twist M. M.
.5	\$1.50	28	6	2.	\$1.65	57	30
.55	1.50	29	8	2.05	1.70	57	30
.6	1.50	30	9	2.1	1.70	58	31
.65	1.50	31	12	2.15	1.70	59	32
.7	1.50	32	13	2.2	1.70	60	33
.75	1.50	33	13	2.25	1.70	61	34
.8	1.50	34	13	2.3	1.70	62	35
.85	1.50	35	15	2.35	1.70	63	36
.9	1.50	36	16	2.4	1.70	64	36
.95	1.50	37	16	2.45	1.70	65	37
1.	1.50	38	17	2.5	1.70	66	37
1.05	1.55	39	17	2.6	1.75	66	37
1.1	1.55	40	18	2.7	1.75	67	38
1.15	1.55	41	18	2.75	1.75	68	39
1.2	1.55	42	19	2.8	1.75	68	39
1.25	1.55	43	20	2.9	1.75	69	40
1.3	1.60	44	21	3.	1.75	70	41
1.35	1.60	45	22	3.1	1.80	71	42
1.4	1.60	46	22	3.2	1.80	72	43
1.45	1.60	47	22	3.25	1.80	73	44
1.5	1.60	48	23	3.3	1.80	73	44
1.55	1.60	48	23	3.4	1.80	74	45
1.6	1.60	49	23	3.5	1.80	75	46
1.65	1.60	50	24	3.6	1.90	76	47
1.7	1.60	51	25	3.7	1.90	77	48
1.75	1.60	52	26	3.75	1.90	78	48
1.8	1.65	53	27	3.8	1.90	78	48
1.85	1.65	54	28	3.9	1.90	79	49
1.9	1.65	55	29	4.	1.90	80	50
1.95	1.65	56	30				

Continued on next page

Packed: Twelve of a size in an envelope.

Can be furnished with Two-Grooved Shanks if required.

EXTRA CHARGE FOR CARBON DRILLS IN LESS THAN FULL ENVELOPE

W&B

Established 1854
Whitman & Barnes

W&B

Millimeter Size Twist Drills

Straight Shank—Short Set of Jobbers' Length



No. 105E Carbon Steel

Diameter M. M.	Price per Dozen	Length Over All M. M.	Length of Twist M. M.	Diameter M. M.	Price per Dozen	Length Over All M. M.	Length of Twist M. M.
4.1	\$2.00	81	51	7.6	\$4.50	116	81
4.2	2.00	82	52	7.7	4.50	117	82
4.25	2.00	83	52	7.75	4.50	118	83
4.3	2.00	83	52	7.8	4.50	118	83
4.4	2.00	84	52	7.9	4.50	119	84
4.5	2.00	85	53	8.	4.50	120	86
4.6	2.25	86	54	8.1	5.00	121	87
4.7	2.25	87	55	8.2	5.00	122	88
4.75	2.25	88	56	8.25	5.00	123	89
4.8	2.25	88	56	8.3	5.00	123	89
4.9	2.25	89	57	8.4	5.00	124	90
5.	2.25	90	58	8.5	5.00	125	91
5.1	2.60	91	59	8.6	5.50	126	92
5.2	2.60	92	60	8.7	5.50	127	93
5.25	2.60	93	61	8.75	5.50	128	94
5.3	2.60	93	61	8.8	5.50	128	94
5.4	2.60	94	62	8.9	5.50	129	94
5.5	2.60	95	63	9.	5.50	130	95
5.6	2.95	96	64	9.1	6.00	131	96
5.7	2.95	97	65	9.2	6.00	132	97
5.75	2.95	98	66	9.25	6.00	133	98
5.8	2.95	98	66	9.3	6.00	133	98
5.9	2.95	99	67	9.4	6.00	134	99
6.	2.95	100	68	9.5	6.00	135	100
6.1	3.30	101	69	9.6	6.50	136	100
6.2	3.30	102	70	9.7	6.50	137	101
6.25	3.30	103	71	9.75	6.50	138	102
6.3	3.30	103	71	9.8	6.50	138	102
6.4	3.30	104	72	9.9	6.50	139	103
6.5	3.30	105	72	10.	6.50	140	103
6.6	3.65	106	73	10.25	7.25	140	104
6.7	3.65	107	74	10.5	7.25	140	104
6.75	3.65	108	75	10.75	8.00	145	107
6.8	3.65	108	75	11.	8.00	145	107
6.9	3.65	109	76	11.25	9.00	145	108
7.	3.65	110	77	11.50	9.00	145	108
7.1	4.00	111	77	11.75	10.00	150	111
7.2	4.00	112	78	12.	10.00	150	111
7.25	4.00	113	78	12.25	11.00	150	111
7.3	4.00	113	79	12.50	11.00	150	111
7.4	4.00	114	79	12.75	12.50	155	116
7.5	4.00	115	80	13.	12.50	155	116

Packed: Sizes 4.1 to 7.1, inc., one dozen in an envelope; 7.2 to 13., one dozen in a package.

Can be furnished with Two-Grooved Shanks if required.

EXTRA CHARGE FOR CARBON DRILLS IN LESS THAN FULL PACKAGES

Steel Sockets for Taper Shank Drills



No. 100 Rough End

Showing Center Plug Inserted

	Entire Length Ins.	Diam. of Rough End, Ins.	Diam. Barrel	Length Barrel	Price Each
No. 1. Holds $\frac{1}{8}$ to $\frac{9}{16}$ in., incl...	7 $\frac{1}{2}$	1 $\frac{1}{8}$	1 $\frac{1}{16}$	3 $\frac{1}{2}$	\$1.20
No. 2. Holds $\frac{3}{8}$ to $\frac{29}{32}$ in., incl...	8	1 $\frac{1}{4}$	1 $\frac{3}{16}$	4	1.80
No. 3. Holds $\frac{5}{8}$ to 1 $\frac{1}{4}$ in., incl...	10 $\frac{1}{8}$	1 $\frac{1}{2}$	1 $\frac{7}{16}$	5	2.50
No. 4. Holds 1 $\frac{1}{4}$ to 2 in., incl...	13	2	1 $\frac{23}{32}$	6 $\frac{1}{2}$	4.00
No. 5. Holds 2 $\frac{1}{64}$ to 3 in., incl...	16	2 $\frac{5}{8}$	2 $\frac{3}{16}$	7 $\frac{1}{2}$	7.50
No. 6. Holds 3 $\frac{1}{64}$ to 6 in., incl...	22	3 $\frac{1}{2}$	3 $\frac{3}{8}$	10 $\frac{1}{2}$	14.00

Centered Plugs for turning shanks furnished with these sockets.



No. 100A Fitted

Size	Description	Length Barrel	Diam. Barrel	Price Each
No. 1 to 2	Has No. 1 Hole and No. 2 Shank	3 $\frac{7}{8}$	1 $\frac{1}{16}$	\$2.00
1 to 3	Has No. 1 Hole and No. 3 Shank	3 $\frac{5}{8}$	1 $\frac{1}{16}$	2.50
1 to 4	Has No. 1 Hole and No. 4 Shank	3 $\frac{3}{4}$	1 $\frac{1}{16}$	3.20
1 to 5	Has No. 1 Hole and No. 5 Shank	3 $\frac{7}{8}$	1 $\frac{1}{16}$	4.80
2 to 3	Has No. 2 Hole and No. 3 Shank	4 $\frac{1}{8}$	1 $\frac{3}{16}$	2.50
2 to 4	Has No. 2 Hole and No. 4 Shank	4 $\frac{1}{4}$	1 $\frac{3}{16}$	3.20
2 to 5	Has No. 2 Hole and No. 5 Shank	4 $\frac{3}{8}$	1 $\frac{3}{16}$	4.80
3 to 2	Has No. 3 Hole and No. 2 Shank	5 $\frac{3}{8}$	1 $\frac{7}{16}$	3.20
3 to 3	Has No. 3 Hole and No. 3 Shank	5 $\frac{1}{8}$	1 $\frac{7}{16}$	3.20
3 to 4	Has No. 3 Hole and No. 4 Shank	5 $\frac{1}{4}$	1 $\frac{7}{16}$	3.20
3 to 5	Has No. 3 Hole and No. 5 Shank	5 $\frac{3}{8}$	1 $\frac{7}{16}$	4.80
4 to 3	Has No. 4 Hole and No. 3 Shank	6 $\frac{5}{8}$	1 $\frac{29}{32}$	4.80
4 to 4	Has No. 4 Hole and No. 4 Shank	6 $\frac{3}{4}$	1 $\frac{29}{32}$	4.80
4 to 5	Has No. 4 Hole and No. 5 Shank	6 $\frac{7}{8}$	1 $\frac{29}{32}$	4.80
4 to 6	Has No. 4 Hole and No. 6 Shank	6 $\frac{15}{16}$	1 $\frac{3}{2}$	12.00
5 to 4	Has No. 5 Hole and No. 4 Shank	7 $\frac{3}{4}$	2 $\frac{7}{16}$	12.00
5 to 5	Has No. 5 Hole and No. 5 Shank	7 $\frac{7}{8}$	2 $\frac{7}{16}$	12.00
5 to 6	Has No. 5 Hole and No. 6 Shank	7 $\frac{15}{16}$	2 $\frac{7}{16}$	12.00

For Dimensions of Taper Shanks see page 56.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Steel Sleeves for Taper Shank Drills



No. 100B

Size	Description	Price Each
No. 1 to 2	Has No. 1 Hole and outside fitting No. 2 Socket	\$1.80
1 to 3	Has No. 1 Hole and outside fitting No. 3 Socket	2.40
1 to 4	Has No. 1 Hole and outside fitting No. 4 Socket	3.00
1 to 5	Has No. 1 Hole and outside fitting No. 5 Socket	4.40
2 to 3	Has No. 2 Hole and outside fitting No. 3 Socket	2.40
2 to 4	Has No. 2 Hole and outside fitting No. 4 Socket	3.00
2 to 5	Has No. 2 Hole and outside fitting No. 5 Socket	4.40
3 to 4	Has No. 3 Hole and outside fitting No. 4 Socket	3.00
3 to 5	Has No. 3 Hole and outside fitting No. 5 Socket	4.40
4 to 5	Has No. 4 Hole and outside fitting No. 5 Socket	4.40
4 to 6	Has No. 4 Hole and outside fitting No. 6 Socket	10.00
5 to 6	Has No. 5 Hole and outside fitting No. 6 Socket	10.00

Center Keys or Drifts



No. 100C

Drop forged from Special Steel, finished and case-hardened.
Size will fit corresponding numbers of sockets.

Number	1	2	3	4	5	6
Length, inches	6	6 $\frac{3}{4}$	7 $\frac{1}{2}$	8 $\frac{1}{2}$	10	11 $\frac{3}{4}$
Thickness, inches	$\frac{13}{64}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{15}{32}$	$\frac{5}{8}$	$\frac{3}{4}$
Width, inches	$\frac{23}{32}$	$\frac{27}{32}$	1 $\frac{1}{32}$	1 $\frac{7}{32}$	1 $\frac{7}{16}$	1 $\frac{11}{16}$
Price, each	\$0.30	.35	.40	.50	.60	.75

ALWAYS GIVE LIST NUMBER WHEN ORDERING

“W & B” Short Taper Sockets and Sleeves



No. 101 Short Shank. Rough Socket

This Socket has “W & B” SHORT TAPER SHANK hole, and rough end Shank. Centerplugs for turning are furnished with this Socket free of charge.

	Entire Length Inches	Diam. of Rough End, Ins.	Diam. Barrel	Length Barrel	Price Each
No. 1. Holds $\frac{1}{8}$ to $\frac{9}{16}$ in., incl. . . .	$7\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{16}$	$3\frac{1}{16}$	\$1.20
No. 2. Holds $\frac{3}{16}$ to $1\frac{1}{4}$ in., incl. . . .	$7\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{3}{16}$	$3\frac{3}{8}$	1.80
No. 3. Holds $\frac{5}{16}$ to $1\frac{1}{4}$ in., incl. . . .	$9\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{7}{16}$	$4\frac{3}{16}$	2.50
No. 4. Holds $1\frac{1}{4}$ to 2 in., incl. . . .	$12\frac{1}{16}$	2	$1\frac{23}{32}$	$5\frac{9}{16}$	4.00
No. 5. Holds $2\frac{1}{4}$ to 3 in., incl. . . .	$14\frac{13}{16}$	$2\frac{5}{8}$	$2\frac{7}{16}$	$6\frac{5}{16}$	7.50
No. 6. Holds $3\frac{1}{4}$ to 6 in., incl. . . .	$20\frac{7}{16}$	$3\frac{1}{2}$	$3\frac{3}{8}$	$8\frac{15}{16}$	14.00



No. 101A Short Shank, Fitted Socket

This Socket has “W & B” SHORT TAPER SHANK hole, and is fitted with regular Taper Shank, but will be furnished with “W & B” Short SHANK when so specified.

Size	Description	Length Barrel	Diam. Barrel	Price Each
No. 1 to 2	Has No. 1 Hole and No. 2 Shank	$3\frac{7}{16}$	$1\frac{1}{16}$	\$2.00
1 to 3	Has No. 1 Hole and No. 3 Shank	$3\frac{3}{8}$	$1\frac{1}{16}$	2.50
1 to 4	Has No. 1 Hole and No. 4 Shank	$3\frac{5}{16}$	$1\frac{1}{16}$	3.20
1 to 5	Has No. 1 Hole and No. 5 Shank	$3\frac{7}{16}$	$1\frac{1}{16}$	4.80
2 to 3	Has No. 2 Hole and No. 3 Shank	$3\frac{1}{2}$	$1\frac{3}{16}$	2.50
2 to 4	Has No. 2 Hole and No. 4 Shank	$3\frac{5}{8}$	$1\frac{3}{16}$	3.20
2 to 5	Has No. 2 Hole and No. 5 Shank	$3\frac{3}{4}$	$1\frac{3}{16}$	4.80
3 to 2	Has No. 3 Hole and No. 2 Shank	$4\frac{9}{16}$	$1\frac{7}{16}$	3.20
3 to 3	Has No. 3 Hole and No. 3 Shank	$4\frac{5}{16}$	$1\frac{7}{16}$	3.20
3 to 4	Has No. 3 Hole and No. 4 Shank	$4\frac{7}{16}$	$1\frac{7}{16}$	3.20
3 to 5	Has No. 3 Hole and No. 5 Shank	$4\frac{9}{16}$	$1\frac{7}{16}$	4.80
4 to 3	Has No. 4 Hole and No. 3 Shank	$5\frac{11}{16}$	$1\frac{29}{32}$	4.80
4 to 4	Has No. 4 Hole and No. 4 Shank	$5\frac{13}{16}$	$1\frac{29}{32}$	4.80
4 to 5	Has No. 4 Hole and No. 5 Shank	$5\frac{15}{16}$	$1\frac{29}{32}$	4.80
4 to 6	Has No. 4 Hole and No. 6 Shank	6	$1\frac{29}{32}$	12.00
5 to 4	Has No. 5 Hole and No. 4 Shank	$6\frac{9}{16}$	$2\frac{7}{16}$	12.00
5 to 5	Has No. 5 Hole and No. 5 Shank	$6\frac{11}{16}$	$2\frac{7}{16}$	12.00
5 to 6	Has No. 5 Hole and No. 6 Shank	$6\frac{3}{4}$	$2\frac{7}{16}$	12.00

For Dimensions of Taper Shanks see page 54.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

For Drills with Broken Tangs Use



No. 101B Short Shank, Sleeve

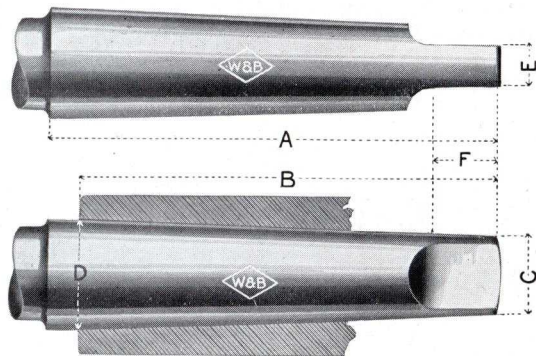
This Sleeve has "W & B" SHORT TAPER SHANK hole, and is fitted with regular Taper Shank outside, but will be furnished with "W & B" SHORT SHANK outside when so specified.

"W & B" SHORT SOCKETS are for use with tools fitted with "W & B" SHORT SHANKS, or in connection with Drills that have lost their original tang and have been fitted with heavy tangs on the old Shank, per dimensions on page 55. Takes the same list price as No. 100B on page 51.

All "W & B" Taper Shank tools will be fitted with "W & B" SHORT SHANKS of regular Taper number at regular prices and discounts. When ordering, give catalog number and specify "W & B" SHORT SHANKS.

To insure correct taper drive, use Whitman & Barnes Sleeves and Sockets with all Whitman & Barnes taper shank tools.

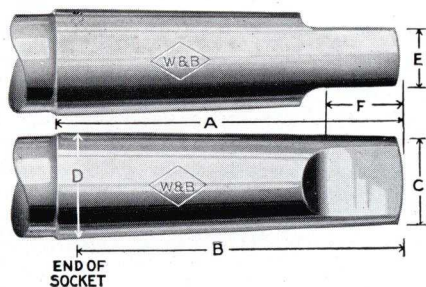
Dimensions of Shanks on Regular Taper Shank Drills



Dimensions

Shank No.	A	B	C	D	E	F	TAPER PER		Drift No.
							Foot	Inch	
0	$2\frac{11}{32}$	$2\frac{7}{32}$	.2406	.3561	$\frac{5}{32}$	$\frac{1}{4}$	.625	.05208	0
1	$2\frac{9}{16}$	$2\frac{7}{16}$	.3531	.475	$\frac{13}{64}$	$\frac{3}{8}$	.600	.05	1
2	$3\frac{1}{8}$	$2\frac{9}{16}$	.5526	.700	$\frac{1}{4}$	$\frac{7}{16}$	.602	.05016	2
3	$3\frac{7}{8}$	$3\frac{11}{16}$	.753	.938	$\frac{5}{16}$	$\frac{9}{16}$	.602	.05016	3
4	$4\frac{7}{8}$	$4\frac{5}{8}$	.9909	1.231	$\frac{15}{32}$	$\frac{5}{8}$	.623	.05191	4
5	$6\frac{1}{8}$	$5\frac{7}{8}$	1.4395	1.748	$\frac{5}{8}$	$\frac{3}{4}$	.630	.0525	5
6	$8\frac{9}{16}$	$8\frac{1}{4}$	2.0636	2.494	$\frac{3}{4}$	$1\frac{1}{8}$	.626	.05216	6
7	$11\frac{5}{8}$	$11\frac{1}{4}$	2.684	3.270	$1\frac{1}{8}$	$1\frac{3}{8}$	.625	.05208	7

Dimensions of "W & B" Short Taper Shanks



Dimensions

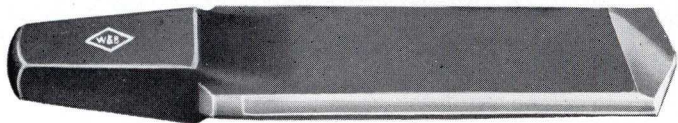
Shank No.	A	B	C	D	E	F	TAPER PER		Drift No.
							Foot	Inch	
0	$1\frac{31}{32}$	$1\frac{27}{32}$	.260	.356	$\frac{3}{16}$	$\frac{1}{4}$	.625	.05208	0
1	$2\frac{3}{16}$	2	.375	.475	$\frac{1}{4}$	$\frac{5}{16}$	.600	.05	1
2	$2\frac{9}{16}$	$2\frac{3}{8}$	.581	.700	$\frac{3}{8}$	$\frac{7}{16}$	.602	.05016	2
3	$3\frac{1}{8}$	$2\frac{15}{16}$	.791	.938	$\frac{1}{2}$	$\frac{9}{16}$	.602	.05016	3
4	$4\frac{1}{16}$	$3\frac{13}{16}$	1.033	1.231	$\frac{5}{8}$	$\frac{5}{8}$	.623	.05191	4
5	$5\frac{1}{16}$	$4\frac{13}{16}$	1.495	1.748	1	$\frac{3}{4}$	.630	.0525	5
6	$7\frac{1}{16}$	$6\frac{3}{4}$	2.142	2.494	$1\frac{1}{4}$	$1\frac{1}{8}$	.626	.05216	6
7	$9\frac{11}{16}$	$9\frac{5}{16}$	2.785	3.270	$1\frac{5}{8}$	$1\frac{1}{2}$	.625	.05208	7

The "W. & B." SHORT SHANK is intended to furnish a stronger Taper Shank drive that will stand the heavy duty now required of tools.

It has the regular Taper and same length as regular Taper Shanks without the tang. The above table of dimensions may be followed in fitting with heavy tangs the Shanks of Drills from which the original tang has been broken or twisted off.

When desired any "W. & B." Taper Shank Tools will be fitted with "W. & B." SHORT SHANKS of regular Taper number at regular prices and discounts. When ordering, give catalog list number of tool and specify "W. & B." SHORT SHANKS.

“W & B” High Speed Track Bits



No. 501B Flat Track Bit with Ratchet Shanks

Fitting Ratchets and Ludlow Electric Track Drills. B shanks $\frac{1}{2}$ inch by $\frac{3}{4}$ inch by $1\frac{3}{4}$ inches long. Bits $\frac{1}{16}$ inch and smaller, $\frac{1}{4}$ inch thick; $\frac{2}{32}$ inch and larger, $\frac{3}{8}$ inch thick. Not made in sizes smaller than $\frac{3}{8}$ inch.



No. 504 Flat Beaded

Fitting Flat Drill Chucks on Paulus, New Style Paulus, Moore, Buda, Girder and heavy track drilling machines.

Bits $\frac{1}{16}$ inch and smaller, $\frac{1}{4}$ inch thick; $\frac{3}{8}$ and larger, $\frac{5}{8}$ inch thick.
Bits $\frac{3}{16}$ and smaller, No. 1 bead; $\frac{3}{8}$ and larger, No. 2 bead.



No. 505 Flat with Round Slabbed Shanks

Fitting Chucks on Paulus, Buda, Harvey, Moore, Francis Reed & Co's Nos. 18 and 19, Duntley and Sheffield Car Company's Track Drilling Machines.

Bits $\frac{1}{16}$ inch and smaller, $\frac{1}{4}$ inch thick.
Bits $\frac{2}{32}$ inch and larger, $\frac{3}{8}$ inch thick.
Shanks $2\frac{1}{4}$ inches long, .648 diameter ($\frac{1}{16}$ inch).



No. 509 Flat with Combination Flat Beaded and Round Shank

This bit will fit all chucks for track drilling machines listed under Nos. 504 and 505 bits above.

Thickness and beads same as No. 504.

Size Inches	Price Each	Length Inches	Size Inches	Price Each	Length Inches
$\frac{1}{2}$	\$.95	$6\frac{1}{4}$	$1\frac{1}{16}$	\$1.50	$6\frac{1}{4}$
$\frac{5}{16}$	1.08	$6\frac{1}{4}$	1	1.55	$6\frac{1}{4}$
$\frac{9}{16}$	1.05	$6\frac{1}{4}$	$1\frac{1}{16}$	1.65	$6\frac{1}{4}$
$1\frac{1}{16}$	1.10	$6\frac{1}{4}$	$1\frac{1}{8}$	1.75	$6\frac{1}{4}$
$\frac{3}{4}$	1.20	$6\frac{1}{4}$	$1\frac{3}{16}$	1.85	$6\frac{1}{4}$
$1\frac{1}{16}$	1.30	$6\frac{1}{4}$	$1\frac{1}{4}$	1.95	$6\frac{1}{4}$
$\frac{7}{8}$	1.40	$6\frac{1}{4}$	...	....	...

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Track Bits

No. 110 Carbon Steel
No. 506 "Diamond" High Speed

Shanks $2\frac{1}{4}$ inches long by $\frac{41}{64}$ (.648) diameter.

Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
$\frac{1}{8}$	\$0.50	....	$4\frac{1}{8}$	2	$\frac{31}{32}$	\$2.40	\$3.90	6	$3\frac{1}{8}$
$\frac{3}{16}$	.55	....	$5\frac{1}{8}$	$2\frac{1}{4}$	1	2.50	4.10	6	$3\frac{1}{8}$
$\frac{1}{4}$	.60	....	$5\frac{3}{8}$	$2\frac{1}{2}$	$1\frac{1}{32}$	2.60	4.30	6	$3\frac{1}{4}$
$\frac{5}{16}$	.65	....	$5\frac{5}{8}$	$2\frac{3}{4}$	$1\frac{1}{16}$	2.70	4.50	6	$3\frac{1}{4}$
$\frac{3}{8}$	.70	\$1.20	6	$3\frac{1}{8}$	$1\frac{1}{8}$	2.80	4.75	6	$3\frac{1}{4}$
$\frac{7}{16}$	.75	1.30	6	$3\frac{3}{8}$	$1\frac{1}{8}$	2.90	5.00	6	$3\frac{1}{4}$
$\frac{1}{2}$	.80	1.40	6	$3\frac{1}{2}$	$1\frac{1}{16}$	3.00	5.25	6	$3\frac{1}{4}$
$\frac{9}{16}$	.85	1.50	6	$3\frac{3}{4}$	$1\frac{1}{8}$	3.10	5.50	6	$3\frac{1}{4}$
$\frac{5}{8}$	.90	1.55	6	$3\frac{1}{4}$	$1\frac{1}{16}$	3.20	5.80	6	$3\frac{1}{4}$
$\frac{11}{16}$	.95	1.65	6	$3\frac{1}{2}$	$1\frac{1}{4}$	3.30	6.10	6	$3\frac{1}{4}$
$\frac{3}{4}$	1.00	1.70	6	$3\frac{3}{4}$	$1\frac{1}{8}$	3.45	6.40	6	$3\frac{1}{4}$
$\frac{7}{8}$	1.05	1.80	6	$3\frac{1}{4}$	$1\frac{1}{16}$	3.60	6.70	6	$3\frac{1}{4}$
1	1.10	1.85	6	$3\frac{5}{8}$	$1\frac{1}{8}$	3.75	7.00	6	$3\frac{1}{4}$
$1\frac{1}{16}$	1.15	1.95	6	$3\frac{3}{4}$	$1\frac{1}{8}$	3.90	7.40	6	$3\frac{1}{4}$
$1\frac{1}{8}$	1.20	2.05	6	$3\frac{7}{8}$	$1\frac{1}{4}$	4.05	7.80	6	$3\frac{1}{4}$
$1\frac{1}{4}$	1.25	2.20	6	$3\frac{5}{8}$	$1\frac{1}{8}$	4.20	8.20	6	$3\frac{1}{4}$
$1\frac{3}{8}$	1.30	2.30	6	$3\frac{1}{2}$	$1\frac{1}{16}$	4.35	8.60	6	$3\frac{1}{4}$
$1\frac{1}{2}$	1.40	2.40	6	$3\frac{3}{4}$	$1\frac{1}{2}$	4.50	9.00	6	$3\frac{1}{4}$
$1\frac{3}{4}$	1.50	2.50	6	$3\frac{7}{8}$	$1\frac{1}{8}$	5.00	....	6	$3\frac{1}{8}$
2	1.60	2.65	6	$3\frac{5}{8}$	$1\frac{1}{4}$	5.50	....	6	$3\frac{1}{8}$
$2\frac{1}{8}$	1.70	2.75	6	$3\frac{1}{2}$	$1\frac{1}{16}$	6.00	....	6	$3\frac{1}{8}$
$2\frac{1}{4}$	1.80	2.90	6	$3\frac{3}{4}$	$1\frac{1}{8}$	6.50	....	6	$3\frac{1}{8}$
$2\frac{3}{8}$	1.90	3.00	6	$3\frac{7}{8}$	$1\frac{1}{4}$	7.00	....	6	$3\frac{1}{8}$
$2\frac{1}{2}$	2.00	3.15	6	$3\frac{5}{8}$	$1\frac{1}{8}$	8.00	....	6	$3\frac{1}{8}$
$2\frac{7}{8}$	2.10	3.30	6	$3\frac{1}{2}$	$1\frac{1}{16}$	9.00	....	6	$3\frac{1}{8}$
3	2.20	3.50	6	$3\frac{3}{4}$	2	10.00	....	6	$3\frac{1}{8}$
$3\frac{1}{8}$	2.30	3.70	6	$3\frac{7}{8}$					

Packed: Sizes 1 inch and smaller, one dozen of a size in a box; $1\frac{1}{64}$ to $1\frac{7}{32}$ inches, one-third dozen; $1\frac{15}{64}$ to $1\frac{15}{32}$ inches, one-sixth dozen of a size in a package.

Bonding Bits

No. 105F Carbon Steel
No. 508 "Diamond" High Speed

For Drilling Bond Wire Holes for Track Circuit Signal Work

Diameter Inches	Price per Dozen		High Speed Shank	Length Inches	Length of Twist
	Carbon Steel	High Speed			
$\frac{3}{8}$	....	....	$\frac{3}{8}$	3	$1\frac{3}{4}$
$\frac{7}{16}$	....	....	$\frac{7}{16}$	3	$1\frac{3}{4}$
$\frac{1}{2}$	\$3.80	\$9.10	$\frac{1}{2}$	3	$1\frac{3}{4}$

*Made only in High Speed for Duplex Channel Pins. Price on application. Specify shank wanted, otherwise $\frac{9}{32}$ shank will be sent.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Track Bits

With Taper Square Shanks Fitting Ratchets and
Ludlow Electric Track Drills



No. 109E Carbon Steel
No. 507 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/8	\$0.90	.....	4 1/4	2	3 1/2	\$2.40	\$5.25	8 1/4	6 1/8
5/32	.95	.....	4 5/8	2 1/4	1	2.55	5.50	8 1/2	6 3/8
3/16	.95	.....	4 3/4	2 3/8	1 1/32	2.70	5.75	8 3/4	6 5/8
7/32	1.00	.....	4 7/8	2 5/8	1 1/16	2.85	6.00	9	6 7/8
1/4	1.00	\$2.50	5	2 3/4	1 3/32	3.00	6.30	9	6 7/8
9/32	1.05	2.55	5	2 3/4	1 1/8	3.10	6.70	9	6 7/8
5/16	1.10	2.60	5	2 7/8	1 5/32	3.25	7.00	9	6 7/8
3/8	1.15	2.65	5	2 7/8	1 3/16	3.35	7.30	9	6 7/8
7/16	1.20	2.70	6	3 7/8	1 7/32	3.50	7.60	9	6 7/8
1/2	1.25	2.75	6 1/4	4 1/8	1 1/2	3.65	7.90	9	6 7/8
9/16	1.25	2.80	6 1/4	4 1/8	1 9/32	3.75	8.25	9	6 7/8
5/8	1.30	2.85	6 1/4	4 1/8	1 5/16	3.90	8.60	9	6 7/8
3/4	1.30	2.90	6 1/2	4 3/8	1 11/32	4.05	9.00	9	6 7/8
7/8	1.35	2.95	6 1/2	4 3/8	1 13/32	4.20	9.40	9	6 7/8
1	1.35	3.00	6 1/2	4 3/8	1 13/16	4.35	9.80	9	6 7/8
1 1/16	1.40	3.10	6 1/2	4 3/8	1 1/16	4.50	10.20	9	6 7/8
1 1/8	1.40	3.20	6 1/2	4 3/8	1 1/8	4.65	10.60	9	6 7/8
1 1/4	1.45	3.30	6 1/2	4 3/8	1 1/2	4.80	11.00	9	6 7/8
1 1/2	1.45	3.40	6 1/2	4 3/8	1 9/16	5.10	.....	9	6 7/8
1 3/4	1.50	3.50	6 1/2	4 3/8	1 5/8	5.40	.....	9	6 7/8
1 7/8	1.55	3.65	6 1/2	4 3/8	1 11/16	5.75	.....	9	6 3/4
2	1.65	3.80	6 1/2	4 3/8	1 3/4	6.10	.....	9	6 3/4
2 1/8	1.75	4.00	7	4 7/8	1 13/16	6.50	.....	9	6 3/4
2 1/4	1.90	4.20	7	4 7/8	1 7/8	6.90	.....	9	6 3/4
2 1/2	2.05	4.50	7 1/2	5 3/8	1 15/16	7.30	.....	9	6 3/4
2 3/4	2.20	4.70	7 3/4	5 3/8	2	7.75	.....	9	6 3/4
3	2.30	5.00	8	5 7/8					

No. 1 or A Shanks—3/8 inch by 5/8 inch by 1 1/2 inches long.

No. 2 or B Shanks—1/2 inch by 3/4 inch by 1 3/4 inches long.

Unless otherwise specified "A" shank will be furnished. On HIGH SPEED over 1 inch, "B" shank will be furnished.

Packed: Sizes 1/8 to 5/8 inch, one dozen; 3/4 to 1 inch, one-half dozen; 1 1/4 to 1 7/8 inch, one-third dozen; 1 3/4 to 1 15/16 inch, one-sixth dozen of a size in a package.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

REAMER SECTION

ACCURATE Reamers produce accurate products. With the exception of Air Drill Reamers used by Bridge Builders, Boiler Makers, etc., and Bit Stock Taper Reamers, the office of a Reamer is to enlarge a hole to a certain desired size, the main factor in regard to the size being

ABSOLUTE ACCURACY

Inasmuch as the first consideration entering into the use of Reamers is ACCURACY, those which hold to size for the greatest number of holes, are most to be desired. "W & B" Reamers are accurate and manufactured with the knowledge that accuracy is vital in producing your product.

"W & B" Reamers are dependable, cut freely with the truest accuracy and hold the record for the greatest number of holes per Reamer. Made under the policy:

*"Make it better than anyone else can make it,
put your name on it and stand by it."*

Hand Reamers (Eccentric Flutes)



No. 115 Carbon Steel
 No. 250 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/8	\$1.00	\$3.00	3	1 1/2	1 1/2	\$5.40	\$18.75	12 17/32	6 17/64
3/32	1.10	3.25	3 1/4	1 5/8	1 3/8	5.60	18.75	12 5/8	6 5/16
7/32	1.20	3.25	3 1/2	1 3/4	1 13/32	5.80	20.50	12 23/32	6 23/64
1/4	1.30	3.50	3 3/4	1 7/8	1 7/16	6.00	20.50	12 13/16	6 33/64
9/32	1.40	3.50	4	2	1 13/32	6.20	22.25	12 29/32	6 29/64
5/16	1.45	3.75	4 1/4	2 1/8	1 1/2	6.40	22.25	13	6 1/2
11/32	1.50	3.75	4 1/2	2 1/4	1 17/32	6.60	24.00	13	6 1/2
3/8	1.55	4.25	4 3/4	2 3/8	1 9/16	6.80	24.00	13	6 1/2
13/32	1.60	4.25	5	2 1/2	1 5/8	7.00	25.75	13	6 1/2
7/16	1.70	4.75	5 1/4	2 5/8	1 5/8	7.20	25.75	13	6 1/2
15/32	1.75	4.75	5 1/2	2 3/4	1 21/32	7.40	27.50	13 1/2	6 3/4
1/2	1.85	5.25	5 3/4	2 7/8	1 11/16	7.60	27.50	13 1/2	6 3/4
9/16	1.90	5.25	6	3	1 23/32	7.80	29.50	13 1/2	6 3/4
5/8	1.95	5.75	6 1/4	3 1/8	1 3/4	8.00	29.50	13 1/2	6 3/4
11/16	2.00	5.75	6 1/2	3 1/4	1 25/32	8.20	31.50	13 1/2	6 3/4
3/4	2.10	6.25	6 3/4	3 3/8	1 13/16	8.40	31.50	13 1/2	6 3/4
7/8	2.20	6.25	7	3 1/2	1 5/8	8.60	33.50	14	6 3/4
15/16	2.30	6.75	7 1/4	3 3/4	1 7/8	8.80	33.50	14	7
1	2.40	6.75	7 1/2	3 3/4	1 29/32	9.00	35.75	14	7
1 1/32	2.50	7.25	8 1/8	4 1/16	1 15/16	9.20	35.75	14	7
1 1/16	2.60	7.25	8 3/8	4 3/16	1 31/32	9.40	38.00	14	7
1 1/8	2.70	7.75	8 3/2	4 3/8	2	9.60	38.00	14	7
1 1/4	2.80	7.75	9 1/16	4 3/4	2 1/16	10.00	40.75	14 1/2	7 1/4
1 1/2	2.95	8.50	9 3/8	4 11/16	2 1/8	10.40	43.50	14 1/2	7 1/4
1 3/4	3.10	8.50	9 11/16	4 3/2	2 3/16	10.80	46.25	15	7 1/2
1 7/8	3.25	9.50	10 3/32	5 3/4	2 1/4	11.30	49.00	15	7 1/2
2	3.40	9.50	10 1/4	5 1/8	2 5/16	11.80	51.75	15	7 1/2
2 1/32	3.55	10.50	10 11/16	5 13/32	2 3/8	12.30	55.00	15	7 1/2
2 1/16	3.70	10.50	10 7/8	5 7/16	2 7/16	12.80	58.25	15 1/2	7 3/4
2 1/8	3.85	11.50	11 1/16	5 3/2	2 1/2	13.40	61.50	15 1/2	7 3/4
2 1/4	4.00	11.50	11 1/4	5 5/8	2 9/16	14.00	64.75	15 1/2	7 3/4
2 3/8	4.15	12.75	11 7/16	5 3/2	2 5/8	14.60	68.00	16	8
2 1/2	4.30	12.75	11 5/8	5 13/16	2 11/16	15.40	71.25	16	8
2 5/8	4.45	14.25	11 13/16	5 3/2	2 3/4	16.20	74.50	16	8
2 3/4	4.60	14.25	12	6	2 13/16	17.00	77.75	16 1/2	8 1/4
2 7/8	4.75	15.75	12 1/8	6 1/16	2 7/8	17.80	81.00	16 1/2	8 1/4
3	4.90	15.75	12 1/4	6 1/8	2 15/16	18.60	84.25	16 1/2	8 1/4
3 1/32	5.05	17.25	12 3/2	6 1/4	3	19.40	87.50	16 1/2	8 1/4
3 1/16	5.20	17.25	12 7/16	6 3/2					

Sixty-fourth sizes between 1/8 inch and 1/2 inch take list of next larger 32nd size. Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Hand Reamers

With Spiral Flutes



No. 115S Carbon Steel

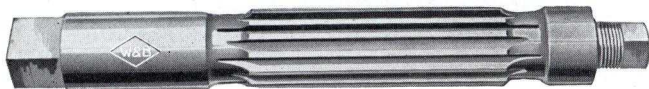
No. 250S "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Inches	Length of Flute Ins.	Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/8	\$1.20	\$3.00	3	1 1/2	2 1/2	\$2.75	\$6.75	7 11/32	3 3/4
9/64	1.30	3.25	3 1/4	1 5/8	1 1/16	2.90	6.75	7 11/16	3 3/2
5/32	1.30	3.25	3 1/4	1 5/8	2 3/32	3.00	7.25	8 1/8	4 1/16
11/64	1.45	3.25	3 1/2	1 3/4	3 3/4	3.10	7.25	8 3/8	4 3/16
3/16	1.45	3.25	3 1/2	1 3/4	2 5/32	3.25	7.75	8 23/32	4 23/64
7/32	1.55	3.50	3 3/4	1 7/8	1 1/8	3.35	7.75	9 1/16	4 3/2
15/64	1.55	3.50	3 3/4	1 7/8	2 1/2	3.55	8.50	9 3/8	4 11/16
1/4	1.70	3.50	4	2	7/8	3.70	8.50	9 11/16	4 27/32
17/64	1.70	3.50	4	2	2 3/32	3.90	9.50	10 3/32	5 3/64
19/64	1.75	3.75	4 1/4	2 1/8	1 1/16	4.10	9.50	10 1/4	5 1/8
9/32	1.75	3.75	4 1/4	2 1/8	3 1/32	4.25	10.50	10 11/16	5 11/32
19/64	1.80	3.75	4 1/2	2 1/4	1	4.45	10.50	10 7/8	5 7/16
5/16	1.80	3.75	4 1/2	2 1/4	1 1/16	4.80	11.50	11 1/4	5 5/8
21/64	1.85	4.25	4 3/4	2 3/8	1 1/8	5.15	12.75	11 5/8	5 13/16
11/32	1.85	4.25	4 3/4	2 3/8	1 3/16	5.50	14.25	12	6
23/64	1.90	4.25	5	2 1/2	1 1/4	5.90	15.75	12 1/4	6 1/8
3/8	1.90	4.25	5	2 1/2	1 5/16	6.25	17.25	12 7/16	6 3/2
25/64	2.05	4.75	5 1/4	2 5/8	1 3/8	6.70	18.75	12 5/8	6 5/16
13/32	2.05	4.75	5 1/4	2 5/8	1 7/16	7.20	20.50	12 13/16	6 13/32
27/64	2.15	4.75	5 1/2	2 3/4	1 1/2	7.70	22.25	13	6 1/2
3/4	2.15	4.75	5 1/2	2 3/4	1 9/16	8.15	24.00	13	6 1/2
15/32	2.20	5.25	5 3/4	2 7/8	1 5/8	8.65	25.75	13	6 1/2
17/32	2.20	5.25	5 3/4	2 7/8	1 11/16	9.10	27.50	13 1/2	6 3/4
31/64	2.30	5.25	6	3	1 3/4	9.60	29.50	13 1/2	6 3/4
1/2	2.30	5.25	6	3	1 13/16	10.10	31.50	13 7/2	6 3/4
17/32	2.35	5.75	6 1/4	3 1/8	1 7/8	10.55	33.50	14	7
9/16	2.40	5.75	6 1/2	3 1/4	1 15/16	11.05	35.75	14	7
19/32	2.50	6.25	6 3/4	3 3/8	2	11.50	38.00	14	7
5/8	2.65	6.25	7	3 1/2					

Sizes and dimensions not listed are special, subject to special prices.
Straight Flute Reamers furnished unless otherwise specified.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Expansion Reamers



No. 121

Diam. Ins.	Price Each	Length Over All Ins.	Length of Flute Ins.	Diam. Ins.	Price Each	Length Over All Ins.	Length of Flute Ins.
1/4	\$3.00	3 3/4	1 1/2	3 1/2	\$6.50	8 3/8	3 3/4
9/32	3.05	4	1 9/16	1	6.75	8 3/8	3 7/8
5/16	3.10	4	1 5/8	1 1/16	7.25	8 5/8	4
11/32	3.15	4 1/4	1 11/16	1 1/8	7.75	9	4 1/8
3/8	3.20	4 1/4	1 3/4	1 3/16	8.30	9 3/8	4 1/4
13/32	3.25	4 1/2	1 3/4	1 1/4	8.90	9 3/4	4 3/8
7/16	3.30	4 1/2	1 13/16	1 5/8	9.50	10 1/8	4 5/8
15/32	3.35	5	1 13/16	1 3/8	10.50	10 5/8	4 3/4
1/2	3.40	5	1 7/8	1 7/16	11.50	10 7/8	4 3/4
1 1/32	3.50	5 3/8	1 7/8	1 1/2	12.50	11 1/8	4 3/4
9/16	3.65	5 3/8	1 5/8	1 9/16	13.00	11 1/4	4 3/4
19/32	3.80	5 7/8	2 1/8	1 5/8	13.50	11 1/2	4 7/8
5/8	4.00	5 7/8	2 3/8	1 11/16	14.00	11 5/8	4 7/8
21/32	4.20	6 1/4	2 3/8	1 3/4	14.50	11 7/8	4 5/8
11/16	4.40	6 1/4	2 1/2	1 13/16	15.00	12 1/8	4 5/8
23/32	4.60	6 1/2	2 1/2	1 7/8	15.50	12 1/4	5
3/4	4.80	6 1/2	2 5/8	1 15/16	16.00	12 3/8	5
25/32	5.00	7	2 3/4	2	16.50	12 1/2	5 1/16
13/16	5.25	7	3	2 1/8	17.50	12 3/4	5 1/16
27/32	5.50	7 1/2	3 1/8	2 1/4	18.50	13	5 1/8
7/8	5.75	7 1/2	3 5/16	2 3/8	19.50	13 1/2	5 1/4
29/32	6.00	7 7/8	3 7/16	2 1/2	20.50	14	5 3/8
15/16	6.25	7 7/8	3 9/16				

Limits of expansion recommended for these Reamers are as follows: Sizes 1/4 to 1 1/2, .006 inch; 1/2 to 3/2, .010 inch; 1 to 1 3/2, .012 inch; 1 1/4 to 3, .015 inch.

Sixty-fourth sizes from 1/4 to 1 inch inclusive and thirty-second sizes from 1 inch to 1 1/2 inch inclusive are regular and take the list of the next larger sizes.

These reamers are cleared for brass.

All sizes and dimensions not listed are special and subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Taper Shank Jobbers Reamers



No. 116 Carbon Steel

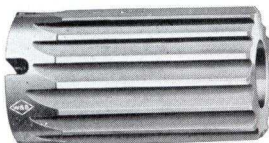
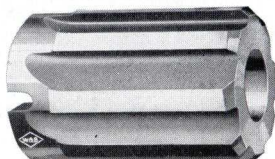
No. 251 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.	Shank Taper	Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.	Shank Taper		
	Carbon Steel	High Speed					Carbon Steel	High Speed					
1/4	\$1.70	\$4.00	5 3/16	2	No. 1	1	\$4.45	\$11.50	10 3/8	5 7/16	No. 3		
1/4	1.75	4.25	5 3/16	2		1 1/32	4.60	12.50	10 3/8	5 7/16			
5/16	1.75	4.25	5 3/16	2		1 1/16	4.80	12.50	10 5/8	5 5/8			
3/8	1.80	4.25	5 1/2	2 1/4		1 3/32	5.00	13.75	10 5/8	5 5/8			
7/16	1.80	4.25	5 1/2	2 1/4		1 1/8	5.15	13.75	10 7/8	5 3/8			
1/2	1.85	4.75	5 1/2	2 1/4		1 5/32	5.35	15.25	10 7/8	5 3/8			
9/16	1.85	4.75	5 1/2	2 1/4		1 3/16	5.50	15.25	11 1/8	6			
5/8	1.90	4.75	5 3/8	2 1/2		1 7/32	5.70	16.75	11 1/8	6			
3/4	1.90	4.75	5 3/8	2 1/2		No. 2	1 1/4	5.90	16.75	12 1/2		6 1/8	No. 4
7/8	2.05	5.25	5 3/8	2 1/2			1 9/32	6.05	18.25	12 1/2		6 1/8	
1	2.05	5.25	5 3/8	2 1/2			1 1/16	6.25	18.25	12 1/2		6 1/8	
1 1/16	2.15	5.25	6 1/8	2 3/4			1 1/8	6.50	19.75	12 1/2		6 1/4	
1 1/8	2.15	5.25	6 1/8	2 3/4	1 3/8		6.70	19.75	12 3/8	6 5/16			
1 1/4	2.20	5.75	6 1/8	2 3/4	1 5/8		6.95	21.50	12 3/8	6 5/16			
1 3/8	2.20	5.75	6 1/8	2 3/4	1 3/4		7.20	21.50	13	6 7/16			
1 1/2	2.30	5.75	6 7/16	3	1 7/16		7.45	23.25	13	6 7/16			
1 3/4	2.30	5.75	6 7/16	3	1 1/2		7.70	23.25	13 1/8	6 1/2			
1 7/8	2.35	6.25	6 7/16	3	1 1/4		7.90	25.00	13 1/8	6 1/2			
2	2.40	6.25	6 3/4	3 1/4	1 3/2		8.15	25.00	13 1/8	6 1/2			
1 1/16	2.50	6.75	6 3/4	3 1/4	1 9/16		8.40	26.75	13 1/8	6 1/2	No. 5		
1 1/8	2.65	6.75	7 9/16	3 1/2	1 5/8	8.65	26.75	13 1/8	6 1/2				
1 1/4	2.75	7.25	7 9/16	3 1/2	1 3/4	8.90	28.50	13 1/8	6 1/2				
1 1/2	2.90	7.25	8	3 7/8	1 11/16	9.10	28.50	13 3/8	6 3/4				
1 3/8	3.00	7.75	8	3 7/8	1 3/2	9.35	30.50	13 3/8	6 3/4				
1 1/2	3.10	7.75	8 3/8	4 3/16	No. 3	1 3/4	9.60	30.50	14 11/16	6 3/4			
1 3/4	3.25	8.50	8 3/8	4 3/16		1 1/2	9.85	32.50	14 11/16	6 3/4			
1 7/8	3.35	8.50	8 3/8	4 3/16		1 5/8	10.10	32.50	14 11/16	6 3/4			
2	3.55	9.50	8 3/8	4 3/16		1 7/8	10.30	34.50	14 11/16	6 3/4			
1 15/16	3.70	9.50	9 3/16	4 7/8		1 27/32	10.55	34.50	15	7			
2 1/16	3.90	10.50	9 3/16	4 7/8		1 13/8	10.80	36.75	15	7			
1 1/2	4.10	10.50	10	5 1/8		1 29/32	11.05	36.75	15	7			
1 3/4	4.25	11.50	10	5 1/8		1 15/16	11.30	39.00	15	7			
						1 31/32	11.50	39.00	15	7			

All sizes and dimensions not listed are special and subject to special prices.

USE "W & B" SOCKETS AND SLEEVES

Shell Reamers

Fluted

Rose

No. 117 Carbon Steel
No. 260 "Diamond" High Speed
No. 117A Carbon Steel
No. 261 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Diam. Hole Large End Ins.	Fitting Arbor
	Carbon Steel	High Speed			
$\frac{3}{4}$	\$2.10	\$3.85	$2\frac{1}{4}$	$\frac{3}{8}$	} No. 4
$\frac{25}{32}$	2.20	4.00	$2\frac{1}{4}$	$\frac{3}{8}$	
$\frac{13}{16}$	2.20	4.00	$2\frac{1}{2}$	$\frac{1}{2}$	} No. 5
$\frac{17}{16}$	2.30	4.25	$2\frac{1}{2}$	$\frac{1}{2}$	
$\frac{33}{32}$	2.30	4.25	$2\frac{1}{2}$	$\frac{1}{2}$	
$\frac{7}{8}$	2.40	4.50	$2\frac{1}{2}$	$\frac{1}{2}$	
$\frac{29}{32}$	2.40	4.50	$2\frac{1}{2}$	$\frac{1}{2}$	
$\frac{15}{16}$	2.50	4.75	$2\frac{1}{2}$	$\frac{1}{2}$	
$\frac{31}{32}$	2.50	4.75	$2\frac{1}{2}$	$\frac{1}{2}$	
1	2.50	4.75	$2\frac{1}{2}$	$\frac{1}{2}$	
$1\frac{1}{32}$	2.70	5.00	$2\frac{1}{2}$	$\frac{1}{2}$	} No. 6
$1\frac{1}{16}$	2.70	5.00	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{3}{32}$	2.90	5.25	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{1}{8}$	2.90	5.25	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{5}{32}$	3.10	5.50	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{3}{16}$	3.10	5.50	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{7}{32}$	3.30	5.75	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{1}{4}$	3.30	5.75	$2\frac{3}{4}$	$\frac{5}{8}$	
$1\frac{9}{32}$	3.55	6.00	$2\frac{3}{4}$	$\frac{5}{8}$	} No. 7
$1\frac{5}{8}$	3.55	6.00	3	$\frac{3}{4}$	
$1\frac{11}{32}$	3.80	6.50	3	$\frac{3}{4}$	
$1\frac{3}{4}$	3.80	6.50	3	$\frac{3}{4}$	
$1\frac{13}{32}$	4.05	7.00	3	$\frac{3}{4}$	
$1\frac{7}{16}$	4.05	7.00	3	$\frac{3}{4}$	
$1\frac{15}{32}$	4.30	7.50	3	$\frac{3}{4}$	
$1\frac{1}{2}$	4.30	7.50	3	$\frac{3}{4}$	
$1\frac{17}{32}$	4.55	8.25	3	$\frac{3}{4}$	
$1\frac{9}{16}$	4.55	8.25	3	$\frac{3}{4}$	
$1\frac{19}{32}$	4.80	9.00	3	$\frac{3}{4}$	
$1\frac{11}{8}$	4.80	9.00	3	$\frac{3}{4}$	
$1\frac{21}{32}$	5.10	9.75	3	$\frac{3}{4}$	

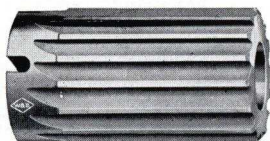
For Shell Reamer Arbors see pages 68 and 69.

Sizes and dimensions not listed are special, subject to special prices.

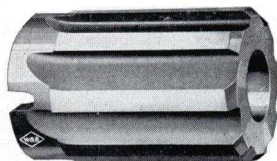
ALWAYS GIVE LIST NUMBER WHEN ORDERING

Shell Reamers

Fluted



Rose



No. 117 Carbon Steel

No. 117A Carbon Steel

No. 260 "Diamond" High Speed

No. 261 "Diamond" High Speed

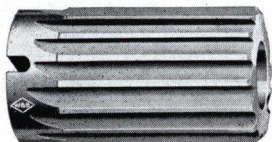
Diameter Ins.	Price Each		Length Over All Ins.	Diam. Hole Large End Ins.	Fitting Arbor
	Carbon Steel	High Speed			
1 11/16	\$5.10	\$ 9.75	3 1/2	1	No. 8
1 2 3/8	5.40	10.50	3 1/2	1	
1 3/4	5.40	10.50	3 1/2	1	
1 7/8	5.70	11.25	3 1/2	1	
1 15/16	5.70	11.25	3 1/2	1	
1 27/32	6.00	12.00	3 1/2	1	
1 7/8	6.00	12.00	3 1/2	1	
1 29/32	6.30	12.75	3 1/2	1	
1 15/16	6.30	12.75	3 1/2	1	
1 31/32	6.60	13.50	3 1/2	1	
2	6.60	13.50	3 1/2	1	
2 1/16	6.95	14.25	3 3/4	1 1/4	No. 9
2 1/8	7.30	15.00	3 3/4	1 1/4	
2 3/16	7.65	15.75	3 3/4	1 1/4	
2 1/4	8.00	16.50	3 3/4	1 1/4	
2 5/16	8.35	17.25	3 3/4	1 1/4	
2 3/8	8.70	18.00	3 3/4	1 1/4	
2 7/16	9.05	18.75	3 3/4	1 1/4	
2 1/2	9.40	19.50	3 3/4	1 1/4	
2 9/16	9.80	20.50	4	1 1/2	No. 10
2 5/8	10.20	21.75	4	1 1/2	
2 11/16	10.60	23.00	4	1 1/2	
2 3/4	11.00	24.25	4	1 1/2	
2 13/16	11.40	25.50	4	1 1/2	
2 7/8	11.80	27.00	4	1 1/2	
2 15/16	12.20	28.50	4	1 1/2	
3	12.60	30.00	4	1 1/2	

For Shell Reamer Arbors see pages 68 and 69.
 Sizes and dimensions not listed are special, subject to special prices.

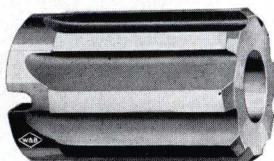
ALWAYS GIVE LIST NUMBER WHEN ORDERING

Shell Reamers

Fluted



Rose



No. 117 Carbon Steel

No. 260 "Diamond" High Speed

No. 117A Carbon Steel

No. 261 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Diam. Hole Large End Ins.	Fitting Arbor
	Carbon Steel	High Speed			
3 1/16	\$13.10	\$31.50	4 1/2	1 3/4	No. 11
3 1/8	13.60	33.25	4 1/2	1 3/4	
3 3/16	14.10	35.25	4 1/2	1 3/4	
3 1/4	14.60	37.50	4 1/2	1 3/4	
3 5/16	15.10	40.00	4 1/2	1 3/4	
3 3/8	15.60	42.50	4 1/2	1 3/4	
3 7/16	16.10	45.25	4 1/2	1 3/4	
3 1/2	16.60	48.00	4 1/2	1 3/4	
3 9/16	17.20	50.75	5	2	No. 12
3 5/8	17.80	53.50	5	2	
3 11/16	18.40	56.50	5	2	
3 3/4	19.00	59.50	5	2	
3 7/8	19.60	62.75	5	2	
3 15/16	20.20	66.00	5	2	
4	20.80	69.25	5	2	
4	21.40	72.50	5	2	
4 1/8	22.90	79.00	5 1/2	2 1/4	No. 13
4 1/4	24.40	85.50	5 1/2	2 1/4	
4 3/8	25.90	92.00	5 1/2	2 1/4	
4 1/2	27.40	98.50	5 1/2	2 1/4	
4 5/8	29.30	105.00	6	2 1/2	No. 14
4 3/4	31.20	111.50	6	2 1/2	
4 7/8	33.10	118.00	6	2 1/2	
5	35.00	125.00	6	2 1/2	
5 1/8	37.40	132.50	6	2 1/2	
5 1/4	39.80	140.00	6	2 1/2	
5 3/8	42.20	147.50	6	2 1/2	
5 1/2	44.60	155.00	6	2 1/2	
5 5/8	47.60	163.75	6 1/2	2 3/4	No. 15
5 3/4	50.60	172.50	6 1/2	2 3/4	
5 7/8	53.60	181.25	6 1/2	2 3/4	
6	56.60	190.00	6 1/2	2 3/4	

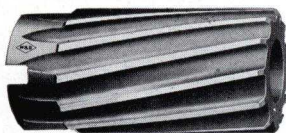
For Shell Reamer Arbors see pages 68 and 69.

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Fluted Shell Reamers

With Spiral Flute



No. 117S Carbon Steel

No. 260S "Diamond" High Speed

Diam. Inches	Price Each		Length Over All Inches	Diam. Hole Large End Inches	Fitting Arbor No.	Diam. Inches	Price Each		Length Over All Inches	Diam. Hole Large End Inches	Fitting Arbor No.
	Carbon Steel	High Speed Steel					Carbon Steel	High Speed Steel			
3/4	\$2.50	\$3.85	2 1/4	3/8	4	1 9/16	\$5.45	\$8.25	3	3/4	7
2 5/2	2.65	4.00	2 1/4	3/8	4	1 5/8	5.75	9.00	3	3/4	7
1 13/16	2.65	4.00	2 1/2	1/2	5	1 11/16	6.10	9.75	3 1/2	1	8
2 7/8	2.75	4.25	2 1/2	1/2	5	1 3/4	6.50	10.50	3 1/2	1	8
2 1/2	2.75	4.25	2 1/2	1/2	5	1 11/16	6.85	11.25	3 1/2	1	8
2 9/8	2.90	4.50	2 1/2	1/2	5	1 7/8	7.20	12.00	3 1/2	1	8
2 3/2	2.90	4.50	2 1/2	1/2	5	1 15/16	7.55	12.75	3 1/2	1	8
3 1/2	3.00	4.75	2 1/2	1/2	5	2	7.90	13.50	3 1/2	1	8
3 1/2	3.00	4.75	2 1/2	1/2	5	2 1/16	8.35	14.25	3 3/4	1 1/4	9
1 1/2	3.25	5.00	2 1/2	1/2	5	2 1/8	8.75	15.00	3 3/4	1 1/4	9
1 1/16	3.25	5.00	2 3/4	5/8	6	2 3/16	9.20	15.75	3 3/4	1 1/4	9
1 3/2	3.50	5.25	2 3/4	5/8	6	2 1/4	9.60	16.50	3 3/4	1 1/4	9
1 1/8	3.50	5.25	2 3/4	5/8	6	2 5/16	10.00	17.25	3 3/4	1 1/4	9
1 5/2	3.70	5.50	2 3/4	5/8	6	2 3/8	10.45	18.00	3 3/4	1 1/4	9
1 3/2	3.70	5.50	2 3/4	5/8	6	2 7/16	10.85	18.75	3 3/4	1 1/4	9
1 7/16	3.95	5.75	2 3/4	5/8	6	2 1/2	11.30	19.50	3 3/4	1 1/4	9
1 3/4	3.95	5.75	2 3/4	5/8	6	2 9/16	11.75	20.50	4	1 1/2	10
1 9/2	4.25	6.00	2 3/4	5/8	6	2 5/8	12.25	21.75	4	1 1/2	10
1 5/16	4.25	6.00	3	3/4	7	2 11/16	12.70	23.00	4	1 1/2	10
1 1/2	4.55	6.50	3	3/4	7	2 3/4	13.20	24.25	4	1 1/2	10
1 3/8	4.55	6.50	3	3/4	7	2 9/16	13.70	25.50	4	1 1/2	10
1 1/2	4.85	7.00	3	3/4	7	2 7/8	14.15	27.00	4	1 1/2	10
1 7/16	4.85	7.00	3	3/4	7	2 5/8	14.65	28.50	4	1 1/2	10
1 1/2	5.15	7.50	3	3/4	7	3	15.10	30.00	4	1 1/2	10
1 1/2	5.15	7.50	3	3/4	7						

Sizes and dimensions not listed are special, subject to special prices.

For list of Shell Reamer Arbors, see pages 68 and 69.

Straight Flute Reamers furnished unless otherwise specified.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Arbors for Shell Reamers



No. 120T Taper Shank

Size	Price Each	Fitting Sizes Inches	Length Over All Inches	Shank Taper
No. 3	\$2.90	$\frac{1}{2}$ to $\frac{5}{8}$	8	No. 1
4	3.25	$\frac{3}{4}$ to $\frac{25}{32}$	9	} No. 2
5	3.60	$\frac{13}{16}$ to $1\frac{1}{32}$	9½	
6	3.95	$1\frac{1}{16}$ to $1\frac{9}{32}$	10	} No. 3
7	4.30	$1\frac{5}{16}$ to $1\frac{21}{32}$	11	
8	4.80	$1\frac{11}{16}$ to 2	12	} No. 4
9	5.40	$2\frac{1}{16}$ to $2\frac{1}{2}$	13	
10	6.30	$2\frac{9}{16}$ to 3	14	} No. 5
11	9.00	$3\frac{1}{16}$ to $3\frac{1}{2}$	15	
12	12.60	$3\frac{9}{16}$ to 4	16	
13	16.20	$4\frac{1}{8}$ to $4\frac{1}{2}$	17	
14	21.60	$4\frac{5}{8}$ to $5\frac{1}{2}$	18	
15	26.40	$5\frac{5}{8}$ to 6	19	No. 6



No. 120J Straight Shank

Size	Price Each	Fitting Sizes Inches	Length Over All Inches	Size	Price Each	Fitting Sizes Inches	Length Over All Inches
No. 3	\$2.40	$\frac{1}{2}$ to $\frac{5}{8}$	8	No. 10	\$5.25	$2\frac{9}{16}$ to 3	14
4	2.70	$\frac{3}{4}$ to $\frac{25}{32}$	9	11	7.50	$3\frac{1}{16}$ to $3\frac{1}{2}$	15
5	3.00	$\frac{13}{16}$ to $1\frac{1}{32}$	9½	12	10.50	$3\frac{9}{16}$ to 4	16
6	3.30	$1\frac{1}{16}$ to $1\frac{9}{32}$	10	13	13.50	$4\frac{1}{8}$ to $4\frac{1}{2}$	17
7	3.60	$1\frac{5}{16}$ to $1\frac{21}{32}$	11	14	18.00	$4\frac{5}{8}$ to $5\frac{1}{2}$	18
8	4.00	$1\frac{11}{16}$ to 2	12	15	22.00	$5\frac{5}{8}$ to 6	19
9	4.50	$2\frac{1}{16}$ to $2\frac{1}{2}$	13				

For Shell Drills and Reamers see pages 64, 65, 66, 67, 74, 75, 76, 77.
 Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

“Diamond” Easy Starting Arbors

For Shell Reamers

Patented December 15, 1908



No. 125A Taper Shank



No. 125 Straight Shank

Size	Price No. 125A Taper Shank	Price No. 125 Straight Shank	Fitting Sizes Inches	Length Over All Inches	Taper Shank
No. 3	\$4.35	\$3.60	$\frac{1}{2}$ to $\frac{5}{8}$	8	} No. 1
4	4.90	4.05	$\frac{3}{4}$ to $\frac{25}{32}$	9	
5	5.40	4.50	$\frac{7}{16}$ to $1\frac{1}{32}$	$9\frac{1}{2}$	
6	5.95	4.95	$1\frac{1}{16}$ to $1\frac{9}{32}$	10	} No. 3
7	6.45	5.40	$1\frac{5}{16}$ to $1\frac{3}{8}$	11	
8	7.20	6.00	$1\frac{11}{16}$ to 2	12	} No. 4
9	8.10	6.75	$2\frac{1}{16}$ to $2\frac{1}{2}$	13	
10	9.45	7.90	$2\frac{9}{16}$ to 3	14	} No. 5
11	13.50	11.25	$3\frac{1}{8}$ to $3\frac{1}{2}$	15	
12	18.90	15.75	$3\frac{9}{16}$ to 4	16	
13	24.30	20.25	$4\frac{1}{8}$ to $4\frac{1}{2}$	17	
14	32.40	27.00	$4\frac{5}{8}$ to $5\frac{1}{2}$	18	
15	39.60	33.00	$5\frac{5}{8}$ to 6	19	No. 6

“Diamond” Easy Starting Arbors are made with a nut and sliding collar, the nut being used to move the collar forward and start the reamer or shell tool from the arbor. It is not necessary to remove the arbor from the machine.

This device is a time saver and likewise prevents damaging the tools. For Shell Drills and Reamers see pages 64, 65, 66, 67, 74, 75, 76, 77.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Fluted Chucking Reamers

(Eccentric Flutes)

With Taper Shanks



No. 120E Carbon Steel

No. 262 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.	Shank Taper
	Carbon Steel	High Speed			
1/4	\$1.45	\$3.50	6	1 1/2	No. 1
5/16	1.55	3.75	6	1 1/2	
3/8	1.75	4.25	7	1 3/4	
7/16	1.90	4.75	7	1 3/4	
1/2	2.15	5.25	8	2	
9/16	2.40	5.75	8	2	No. 2
5/8	2.70	6.25	9	2 1/4	
11/16	2.90	6.75	9	2 1/4	
3/4	3.05	7.25	9 1/2	2 1/2	
13/16	3.35	8.00	9 1/2	2 1/2	
7/8	3.60	9.00	10	2 5/8	No. 3
15/16	3.90	10.00	10	2 5/8	
1	4.15	11.00	10 1/2	2 3/4	
1 1/16	4.45	12.25	10 1/2	2 3/4	
1 1/8	4.70	13.50	11	2 7/8	
1 1/4	5.00	14.75	11	2 7/8	No. 4
1 1/4	5.20	16.25	11 1/2	3	
1 5/16	5.50	18.00	11 1/2	3	
1 3/8	5.75	19.75	12	3 1/4	
1 7/16	6.05	21.50	12	3 1/4	
1 1/2	6.30	23.25	12 1/2	3 1/2	No. 5
1 9/16	6.60	25.00	12 1/2	3 1/2	
1 5/8	6.90	26.75	13	3 3/4	
1 11/16	7.20	28.50	13	3 3/4	
1 3/4	7.55	30.50	13 1/2	4	
1 13/16	7.90	32.50	13 1/2	4	No. 5
1 7/8	8.30	34.50	14	4 1/4	
1 15/16	8.65	36.75	14	4 1/4	
2	9.00	39.00	14	4 1/4	

Thirty-second sizes not listed from 1/4 to 1 1/4 inch take list of next larger size.

Sizes and dimensions not listed are special, subject to special prices.

USE "W & B" SOCKETS AND SLEEVES

Fluted Chucking Reamers

(Eccentric Flutes)

With Straight Shank



No. 120F Carbon Steel

No. 263 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.
	Carbon Steel	High Speed		
1/8	\$.90	\$2.00	3 3/4	7/8
5/32	.95	2.25	5	1 1/4
3/16	1.00	2.50	5	1 1/4
7/32	1.10	2.75	5	1 1/4
1/4	1.20	3.00	6	1 1/2
5/16	1.30	3.25	6	1 1/2
3/8	1.45	3.75	7	1 3/4
7/16	1.60	4.25	7	1 3/4
1/2	1.80	4.75	8	2
9/16	2.00	5.25	8	2
5/8	2.25	5.75	9	2 1/4
11/16	2.40	6.25	9	2 1/4
3/4	2.55	6.75	9 1/2	2 1/2
13/16	2.80	7.25	9 1/2	2 1/2
7/8	3.00	8.00	10	2 5/8
15/16	3.25	9.00	10	2 5/8
1	3.45	10.00	10 1/2	2 3/4
1 1/16	3.70	11.25	10 1/2	2 3/4
1 1/8	3.90	12.50	11	2 7/8
1 3/16	4.15	13.75	11	2 7/8
1 1/4	4.35	15.25	11 1/2	3
1 5/16	4.60	17.00	11 1/2	3
1 3/8	4.80	18.75	12	3 1/4
1 7/16	5.05	20.50	12	3 1/4
1 1/2	5.25	22.25	12 1/2	3 1/2
1 9/16	5.50	24.00	12 1/2	3 1/2
1 5/8	5.75	25.75	13	3 3/4
1 11/16	6.00	27.50	13	3 3/4
1 3/4	6.30	29.50	13 1/2	4
1 13/16	6.60	31.50	13 1/2	4
1 7/8	6.90	33.50	14	4 1/4
1 15/16	7.20	35.75	14	4 1/4
2	7.50	38.00	14	4 1/4

Thirty second sizes not listed from 1/4 to 1 1/4 inch take list of next larger size.

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Rose Chucking Reamers

With Taper Shanks



No. 120G Carbon Steel

No. 264 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.	Shank Taper
	Carbon Steel	High Speed			
1/4	\$1.45	\$3.50	6	1 1/2	No. 1
5/16	1.55	3.75	6	1 1/2	
3/8	1.75	4.25	7	1 3/4	
7/16	1.90	4.75	7	1 3/4	
1/2	2.15	5.25	8	2	
9/16	2.40	5.75	8	2	No. 2
5/8	2.70	6.25	9	2 1/4	
11/16	2.90	6.75	9	2 1/4	
3/4	3.05	7.25	9 1/2	2 1/2	
13/16	3.35	8.00	9 1/2	2 1/2	
7/8	3.60	9.00	10	2 5/8	No. 3
15/16	3.90	10.00	10	2 5/8	
1	4.15	11.00	10 1/2	2 3/4	
1 1/16	4.45	12.25	10 1/2	2 3/4	
1 1/8	4.70	13.50	11	2 7/8	
1 3/16	5.00	14.75	11	2 7/8	No. 4
1 1/4	5.20	16.25	11 1/2	3	
1 5/16	5.50	18.00	11 1/2	3	
1 3/8	5.75	19.75	12	3 1/4	
1 7/16	6.05	21.50	12	3 1/4	
1 1/2	6.30	23.25	12 1/2	3 1/2	No. 5
1 9/16	6.60	25.00	12 1/2	3 1/2	
1 5/8	6.90	26.75	13	3 3/4	
1 11/16	7.20	28.50	13	3 3/4	
1 3/4	7.55	30.50	13 1/2	4	
1 13/16	7.90	32.50	13 1/2	4	No. 5
1 7/8	8.30	34.50	14	4 1/4	
1 15/16	8.65	36.75	14	4 1/4	
2	9.00	39.00	14	4 1/4	

Thirty-second sizes not listed from 1/4 to 1 1/4 inch take list of next larger size.

Sizes and dimensions not listed are special, subject to special prices.

USE "W & B" SOCKETS AND SLEEVES

W&B

 Established 1854
Whitman & Barnes

W&B

Rose Chucking Reamers

With Straight Shank



No. 120H Carbon Steel

No. 265 "Diamond" High Speed

Diameter Ins.	Price Each		Length Over All Ins.	Length of Flute Ins.
	Carbon Steel	High Speed		
1/8	\$.90	\$2.00	3 3/4	7/8
5/32	.95	2.25	5	1 1/4
3/16	1.00	2.50	5	1 1/4
7/32	1.10	2.75	5	1 1/4
1/4	1.20	3.00	6	1 1/2
5/16	1.30	3.25	6	1 1/2
3/8	1.45	3.75	7	1 3/4
7/16	1.60	4.25	7	1 3/4
1/2	1.80	4.75	8	2
9/16	2.00	5.25	8	2
5/8	2.25	5.75	9	2 1/4
11/16	2.40	6.25	9	2 1/4
3/4	2.55	6.75	9 1/2	2 1/2
13/16	2.80	7.25	9 1/2	2 1/2
7/8	3.00	8.00	10	2 5/8
15/16	3.25	9.00	10	2 5/8
1	3.45	10.00	10 1/2	2 3/4
1 1/16	3.70	11.25	10 1/2	2 3/4
1 1/8	3.90	12.50	11	2 7/8
1 3/16	4.15	13.75	11	2 7/8
1 1/4	4.35	15.25	11 1/2	3
1 5/16	4.60	17.00	11 1/2	3
1 3/8	4.80	18.75	12	3 1/4
1 7/16	5.05	20.50	12	3 1/4
1 1/2	5.25	22.25	12 1/2	3 1/2
1 9/16	5.50	24.00	12 1/2	3 1/2
1 5/8	5.75	25.75	13	3 3/4
1 11/16	6.00	27.50	13	3 3/4
1 3/4	6.30	29.50	13 1/2	4
1 13/16	6.60	31.50	13 1/2	4
1 7/8	6.90	33.50	14	4 1/4
1 15/16	7.20	35.75	14	4 1/4
2	7.50	38.00	14	4 1/4

Thirty-second sizes not listed from 1/4 to 1 1/4 inch take list of next larger size.

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Three Groove Twist Drills or Reamers Taper Shank



No. 102B Carbon Steel

No. 402B "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper
	Carbon Steel	High Speed					Carbon Steel	High Speed			
1/4	\$1.00	\$2.00	6 1/8	3	No. 1	1 3/8	\$6.50	\$17.00	14 1/2	8 7/8	No. 4
9/32	1.05	2.15	6 1/4	3 1/16		1 13/32	7.00	17.75	14 5/8	9	
5/16	1.10	2.25	6 3/8	3 1/8		1 1/16	7.50	18.50	14 3/4	9 1/8	
11/32	1.15	2.40	6 1/2	3 5/8		1 1/8	8.00	19.25	14 7/8	9 1/4	
3/8	1.20	2.50	6 3/4	3 9/16		1 1/2	8.50	20.00	15	9 3/8	
13/32	1.25	2.65	7	3 3/8		1 3/4	9.00	20.75	15 1/8	9 1/2	
7/16	1.30	2.75	7 1/4	4 1/16		1 9/16	9.50	21.50	15 1/4	9 5/8	
15/32	1.40	2.90	7 1/2	4 3/8		1 11/16	10.00	22.25	15 3/8	9 3/4	
1/2	1.50	3.00	7 3/4	4 5/8		1 5/8	10.50	23.00	15 1/2	9 7/8	
9/16	1.60	3.15	8	4 7/8		1 11/8	11.00	23.75	15 5/8	10	
5/8	1.70	3.25	8 1/4	5 1/8		1 13/8	11.50	24.50	15 3/4	10 1/8	
19/32	1.80	3.50	8 1/2	4 7/8		1 3/4	12.00	25.50	15 7/8	10 1/4	
5/8	1.90	3.75	8 3/4	5 1/16		1 37/64	12.50	26.50	16	10 1/4	
23/32	2.00	4.00	9	5 5/16		1 13/16	13.25	27.50	16 1/8	10 1/4	
11/16	2.10	4.25	9 1/4	5 1/2	1 13/16	14.00	28.50	16 1/4	10 3/8		
25/32	2.25	4.65	9 1/2	5 3/4	1 3/2	14.75	29.50	16 3/8	10 1/2		
3/4	2.40	5.00	9 3/4	6	1 7/8	15.50	30.50	16 1/2	10 1/2		
27/32	2.55	5.40	9 7/8	6 3/16	1 29/32	16.25	31.50	16 1/2	10 9/16		
13/16	2.70	5.75	10	6 5/16	1 15/16	17.00	32.50	16 1/2	10 9/16		
27/32	2.85	6.15	10 1/4	6 9/16	1 33/32	17.75	33.50	16 1/2	10 9/16		
7/8	3.00	6.50	10 1/2	6 13/16	2	18.50	34.50	16 1/2	10 9/16		
29/32	3.15	7.00	10 5/8	6 15/16	2 1/32	19.25	36.00	16 1/2	9 1/2		
15/16	3.30	7.50	10 3/4	6 1/4	2 1/16	20.00	37.50	17	10 1/16		
31/32	3.45	8.00	10 7/8	6 3/8	2 1/8	21.50	40.50	17	10 1/16		
1	3.60	8.50	11	6 3/8	2 3/16	23.00	43.75	17	10 1/16		
1 1/32	3.75	9.00	11 1/8	6 1/2	2 1/4	24.50	47.50	17 1/2	10 9/16		
1 1/16	4.00	9.50	11 1/4	6 5/8	2 5/16	26.00	52.50	17 1/2	10 9/16		
1 1/8	4.25	10.25	11 1/2	6 3/4	2 3/8	27.50	60.00	18	10 7/8		
1 3/32	4.50	11.00	11 3/4	7	2 7/16	29.00	65.00	18 1/2	11 3/8		
1 1/4	4.75	11.75	11 7/8	7 1/4	2 1/2	30.50	70.00	19	11 7/8		
1 5/32	5.00	12.50	12	7 3/8	2 9/16	32.00	76.25	19 1/4	12 3/8		
1 3/16	5.25	13.25	12 1/8	7 1/2	2 5/8	34.00	82.50	19 1/2	12 3/8		
1 7/32	5.50	14.00	12 1/4	7 5/8	2 11/16	36.00	88.75	20	12 7/8		
1 1/2	5.75	14.75	12 1/2	8	2 3/4	38.00	95.00	20 1/2	13 1/4		
9/16	6.00	15.50	12 3/4	8 1/2	2 13/16	40.50	102.50	20 1/2	13 1/4		
1 1/16	6.25	16.25	13 1/8	8 5/8	2 7/8	43.00	110.00	21	13 3/4		
				8 3/4	2 15/16	45.50	117.50	21	13 3/4		
					3	48.00	125.00	22	14 5/8		

Sixty-fourth Sizes 1 1/2" and smaller take list next larger size.

For enlarging cored, punched or drilled holes. Will not drill solid metal.

USE "W & B" SOCKETS AND SLEEVES

Three Groove Twist Drills or Reamers

Straight Shank



No. 104B Carbon Steel
 No. 404B "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/4	\$1.00	\$2.00	6 1/8	4 1/8	1 13/32	\$7.00	\$17.75	14 5/8	9 1/2
5/16	1.05	2.15	6 1/4	4 1/8	1 7/16	7.50	18.50	14 3/4	9 5/8
3/8	1.10	2.25	6 3/8	4 1/8	1 11/16	8.00	19.25	14 7/8	9 3/4
7/16	1.15	2.40	6 1/2	4 1/4	1 1/2	8.50	20.00	15	9 7/8
1/2	1.20	2.50	6 3/4	4 1/4	1 13/16	9.00	20.75	15 1/8	10
9/16	1.25	2.65	7	4 3/8	1 9/16	9.50	21.50	15 1/4	10 1/8
5/8	1.30	2.75	7 1/4	4 5/8	1 13/16	10.00	22.25	15 3/8	10 1/4
3/4	1.40	2.90	7 1/2	4 7/8	1 5/8	10.50	23.00	15 1/2	10 3/8
7/8	1.50	3.00	7 3/4	5	1 23/32	11.00	23.75	15 5/8	10 1/2
1	1.60	3.15	8	5 1/4	1 11/16	11.50	24.50	15 3/4	10 5/8
1 1/16	1.70	3.25	8 1/4	5 3/8	1 23/32	12.00	25.50	15 7/8	10 3/4
1 1/8	1.80	3.50	8 1/2	5 5/8	1 3/4	12.50	26.50	16	10 7/8
1 1/4	1.90	3.75	8 3/4	5 3/4	1 25/32	13.25	27.50	16 1/8	10 1/8
1 1/2	2.00	4.00	9	5 7/8	1 13/16	14.00	28.50	16 1/4	10 1/4
1 3/8	2.10	4.25	9 1/4	6	1 31/32	14.75	29.50	16 3/8	10 5/8
1 3/4	2.25	4.65	9 1/2	6 3/16	1 7/8	15.50	30.50	16 1/2	10 1/2
1 7/8	2.40	5.00	9 3/4	6 3/8	1 29/32	16.25	31.50	16 1/2	10 1/2
2	2.55	5.40	9 7/8	6 1/2	1 15/16	17.00	32.50	16 1/2	10 1/2
2 1/16	2.70	5.75	10	6 5/8	1 33/32	17.75	33.50	16 1/2	10 1/2
2 1/8	2.85	6.15	10 1/4	6 3/4	2	18.50	34.50	16 1/2	10 1/2
2 1/4	3.00	6.50	10 1/2	7	2 1/32	19.25	36.00	16 1/2	9 7/8
2 3/8	3.15	7.00	10 5/8	7	2 1/16	20.00	37.50	17	10 3/8
2 1/2	3.30	7.50	10 3/4	7	2 1/8	21.50	40.50	17	10 3/8
2 3/4	3.45	8.00	10 7/8	7 1/16	2 3/8	23.00	43.75	17	10 3/8
3	3.60	8.50	11	7 3/16	2 1/4	24.50	47.50	17 1/2	10 7/8
3 1/16	3.75	9.00	11 1/8	7 5/16	2 5/16	26.00	52.50	17 1/2	10 7/8
3 1/8	4.00	9.50	11 1/4	7 3/8	2 3/8	27.50	60.00	18	11 3/8
3 1/4	4.25	10.25	11 1/2	7 5/8	2 7/8	29.00	65.00	18 1/2	11 7/8
3 1/2	4.50	11.00	11 3/4	7 7/8	2 1/2	30.50	70.00	19	12 3/8
3 3/4	4.75	11.75	11 7/8	8	2 9/16	32.00	76.25	19 1/4	12 5/8
4	5.00	12.50	12	8 1/8	2 5/8	34.00	82.50	19 1/2	12 7/8
4 1/16	5.25	13.25	12 1/16	8 1/4	2 11/16	36.00	88.75	20	13 3/8
4 1/8	5.50	14.00	12 1/2	8 1/2	2 3/4	38.00	95.00	20 1/2	13 7/8
4 1/4	5.75	14.75	14 1/8	9 1/8	2 13/16	40.50	102.50	20 1/2	13 7/8
4 1/2	6.00	15.50	14 1/4	9 1/4	2 7/8	43.00	110.00	21	14 3/8
4 3/4	6.25	16.25	14 3/8	9 3/8	2 15/16	45.50	117.50	21	14 3/8
5	6.50	17.00	14 1/2	9 1/2	3	48.00	125.00	22	15 3/8

Sixty-fourth Sizes 1 1/2" and smaller take list next larger size.

Drills 1 1/4 in. to 3 in. have shanks 1 3/4 inches diameter by 6 inches long.
 For enlarging cored, punched or drilled holes. Will not drill solid metal.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Four Groove Twist Drills or Reamers Taper Shank



No. 102C Carbon Steel
 No. 402C "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Shank Taper	
	Carbon Steel	High Speed					Carbon Steel	High Speed				
1/4			6 1/8	3	No. 1	1 3/8	\$6.50	\$17.00	14 1/2	8 7/8	No. 4	
9/32	These sizes regular with three grooves only. Four grooves subject to special prices.		6 1/4	3 1/16		1 3/8	7.00	17.75	14 5/8	9		
5/16			6 3/8	3 1/8		1 7/16	7.50	18.50	14 3/4	9 1/8		
11/32			6 1/2	3 3/16		1 5/8	8.00	19.25	14 7/8	9 1/4		
3/8			6 3/4	3 9/16		1 1/2	8.50	20.00	15	9 3/8		
13/32			7	3 3/8		1 1/2	9.00	20.75	15 1/8	9 1/2		
1/2			7 1/4	4 1/16		1 9/16	9.50	21.50	15 1/4	9 5/8		
13/16			7 1/2	4 3/8		1 3/8	10.00	22.25	15 3/8	9 3/4		
15/32			7 3/4	4 5/8		1 5/8	10.50	23.00	15 1/2	9 7/8		
1/2		\$1.50	\$3.00	8		4 7/8	1 3/4	11.00	23.75	15 5/8		10
17/32		1.60	3.15	8 1/4		5 1/8	1 11/16	11.50	24.50	15 3/4		10 1/8
9/16	1.70	3.25				1 3/4	12.00	25.50	15 7/8	10 1/4		
						1 3/4	12.50	26.50	16	10 3/4		
19/32	1.80	3.50	8 1/2	4 7/8		1 3/4	13.25	27.50	16 1/8	10 1/2		
5/8	1.90	3.75	8 3/4	5 1/16		1 5/8	14.00	28.50	16 1/4	10 3/8		
11/16	2.00	4.00	9	5 5/16		1 5/8	14.75	29.50	16 3/8	10 1/2		
21/32	2.10	4.25	9 1/4	5 1/2	1 7/8	15.50	30.50	16 1/2	10 9/16			
11/16	2.25	4.65	9 1/2	5 3/4	1 7/8	16.25	31.50	16 1/2	10 9/16			
23/32	2.40	5.00	9 3/4	6	1 3/4	17.00	32.50	16 1/2	10 9/16			
23/32	2.55	5.40	9 7/8	6 3/16	1 5/8	17.75	33.50	16 1/2	10 9/16			
25/32	2.70	5.75	10	6 5/16	1 3/4	18.50	34.50	16 1/2	10 9/16			
27/32	2.85	6.15	10 1/4	6 9/16	2							
7/8	3.00	6.50	10 1/2	6 3/8								
29/32	3.15	7.00	10 5/8	6 5/8								
					No. 2	2 1/32	19.25	36.00	16 1/2	9 1/2	No. 5	
15/16	3.30	7.50	10 3/4	6 1/4		2 1/16	20.00	37.50	17	10 1/16		
31/32	3.45	8.00	10 7/8	6 3/8		2 1/8	21.50	40.50	17	10 1/16		
1	3.60	8.50	11	6 1/2		2 3/16	23.00	43.75	17	10 1/16		
1 1/32	3.75	9.00	11 1/8	6 5/8		2 1/4	24.50	47.50	17 1/2	10 9/16		
1 1/16	4.00	9.50	11 1/4	6 3/4		2 5/16	26.00	52.50	17 1/2	10 9/16		
1 1/32	4.25	10.25	11 1/2	7		2 3/8	27.50	60.00	18	10 7/8		
1 1/8	4.50	11.00	11 3/4	7 1/4		2 7/16	29.00	65.00	18 1/2	11 3/8		
1 3/32	4.75	11.75	11 7/8	7 3/8		2 1/2	30.50	70.00	19	11 7/8		
1 3/16	5.00	12.50	12	7 1/2		2 9/16	32.00	76.25	19 1/4	12 1/8		
1 1/2	5.25	13.25	12 1/8	7 5/8	2 5/8	34.00	82.50	19 1/2	12 3/8			
1 1/4	5.50	14.00	12 1/2	8	2 1/2	36.00	88.75	20	12 7/8			
					2 3/4	38.00	95.00	20 1/2	13 1/4			
					2 13/16	40.50	102.50	20 1/2	13 1/4			
1 9/32	5.75	14.75	14 1/8	8 1/2	2 7/8	43.00	110.00	21	13 3/4			
1 5/16	6.00	15.50	14 1/4	8 3/4	2 7/8	45.50	117.50	21	13 3/4			
1 11/32	6.25	16.25	14 3/8	8 5/8	3	48.00	125.00	22	14 5/8			

Sixty-fourth Sizes 1 1/2" and smaller take list next larger size.
 For enlarging cored, punched or drilled holes. Will not drill solid metal.

USE "W & B" SOCKETS AND SLEEVES

Four Groove Twist Drills or Reamers Straight Shank



No. 104C Carbon Steel

No. 404C "Diamond" High Speed

Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.	Diam. Ins.	Price Each		Length Over All Ins.	Length of Twist Ins.
	Carbon Steel	High Speed				Carbon Steel	High Speed		
1/4			6 1/8	4 1/8	1 1/32	\$7.00	\$17.75	14 5/8	9 1/2
9/32			6 1/4	4 1/8	1 1/16	7.50	18.50	14 3/4	9 5/8
5/16			6 3/8	4 1/8	1 1/8	8.00	19.25	14 7/8	9 3/4
11/32			6 1/2	4 1/4	1 1/2	8.50	20.00	15	9 7/8
3/8			6 3/4	4 1/4	1 1/2	9.00	20.75	15 1/8	10
7/16			7	4 3/8	1 9/16	9.50	21.50	15 1/4	10 1/8
13/32			7 1/4	4 5/8	1 11/16	10.00	22.25	15 3/8	10 1/4
15/32			7 1/2	4 7/8	1 5/8	10.50	23.00	15 1/2	10 3/8
17/32			7 3/4	5	1 3/4	11.00	23.75	15 5/8	10 1/2
1 1/2	\$1.50	\$3.00	8	5 1/4	1 11/16	11.50	24.50	15 3/4	10 5/8
1 1/4	1.60	3.15	8 1/4	5 3/8	1 3/4	12.00	25.50	15 7/8	10 3/4
1 3/8	1.70	3.25	8 1/2	5 5/8	1 3/4	12.50	26.50	16	10 7/8
1 1/2	1.80	3.50	8 3/4	5 3/4	1 3/2	13.25	27.50	16 1/8	10 1/8
1 1/4	1.90	3.75	9	5 7/8	1 13/16	14.00	28.50	16 1/4	10 1/4
1 1/8	2.00	4.00	9 1/4	6	1 7/8	14.75	29.50	16 3/8	10 5/8
1 1/4	2.10	4.25	9 1/2	6 3/16	1 7/8	15.50	30.50	16 1/2	10 1/2
1 1/8	2.25	4.65	9 3/4	6 3/8	1 3/4	16.25	31.50	16 1/2	10 1/2
1 1/4	2.40	5.00	9 7/8	6 1/2	1 15/16	17.00	32.50	16 1/2	10 1/2
1 1/8	2.55	5.40	10	6 5/8	1 3/2	17.75	33.50	16 1/2	10 1/2
1 1/4	2.70	5.75	10 1/4	6 3/4	2	18.50	34.50	16 1/2	10 1/2
1 1/8	2.85	6.15	10 1/2	7	2 1/32	19.25	36.00	16 1/2	9 7/8
1 1/4	3.00	6.50	10 3/4	7	2 1/16	20.00	37.50	17	10 3/8
1 1/8	3.15	7.00	10 5/8	7	2 3/16	21.50	40.50	17	10 3/8
1 1/4	3.30	7.50	10 3/4	7 1/8	2 1/4	23.00	43.75	17	10 3/8
1 1/8	3.45	8.00	10 7/8	7 1/8	2 1/4	24.50	47.50	17 1/2	10 7/8
1 1/4	3.60	8.50	11	7 3/8	2 1/2	26.00	52.50	17 1/2	10 7/8
1 1/8	3.75	9.00	11 1/8	7 5/8	2 3/8	27.50	60.00	18	11 3/8
1 1/4	4.00	9.50	11 1/4	7 3/8	2 3/8	29.00	65.00	18 1/2	11 7/8
1 1/8	4.25	10.25	11 1/2	7 5/8	2 7/16	30.50	70.00	19	12 3/8
1 1/4	4.50	11.00	11 3/4	7 7/8	2 1/2	32.00	76.25	19 1/4	12 5/8
1 1/8	4.75	11.75	11 7/8	8	2 9/16	34.00	82.50	19 1/2	12 7/8
1 1/4	5.00	12.50	12	8 1/8	2 5/8	36.00	88.75	20	13 3/8
1 1/8	5.25	13.25	12 1/8	8 1/8	2 1/2	38.00	95.00	20 1/2	13 7/8
1 1/4	5.50	14.00	12 1/2	8 1/2	2 3/4	40.50	102.50	20 1/2	13 7/8
1 1/8	5.75	14.75	14 1/8	9 1/8	2 13/16	43.00	110.00	21	14 3/8
1 1/4	6.00	15.50	14 1/4	9 1/4	2 7/8	45.50	117.50	21	14 3/8
1 1/8	6.25	16.25	14 3/8	9 3/8	2 15/16	48.00	125.00	22	15 3/8
1 1/4	6.50	17.00	14 1/2	9 1/2	3				

Sixty-fourth Sizes 1 1/2" and smaller take list next larger size.

Drills 1 1/4 in. to 3 in. have shanks 1 3/4 inches diameter by 6 inches long.
For enlarging cored, punched or drilled holes. Will not drill solid metal.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Locomotive Taper or Rod Reamers

Taper Shanks



No. 124 Carbon Steel

No. 224 "Diamond" High Speed

Regular Taper $\frac{1}{8}$ Inch Per Foot

Diameter Inches Small End	Price Each		Length Over All Inches	Length of Flute Inches	Shank Taper
	Carbon Steel	High Speed Steel			
$\frac{1}{4}$	\$3.25	\$7.10	$7\frac{3}{16}$	4	No. 1
$\frac{9}{32}$	3.25	7.10	$7\frac{3}{16}$	4	
$\frac{5}{16}$	3.25	7.10	$7\frac{3}{16}$	4	
$\frac{11}{32}$	3.25	7.10	$7\frac{3}{16}$	4	
$\frac{3}{8}$	3.70	7.65	$8\frac{3}{16}$	5	
$\frac{13}{32}$	3.70	7.65	$8\frac{3}{16}$	5	
$\frac{7}{16}$	3.70	8.20	$9\frac{3}{16}$	6	
$\frac{15}{32}$	3.70	8.20	$9\frac{3}{16}$	6	
$\frac{1}{2}$	4.00	8.75	$10\frac{5}{16}$	7	
$\frac{9}{16}$	4.20	10.25	$11\frac{5}{16}$	8	
$\frac{5}{8}$	4.70	13.50	12	8	
$\frac{11}{16}$	4.70	13.50	12	8	
$\frac{3}{4}$	6.50	16.90	$15\frac{7}{8}$	12	No. 2
$\frac{13}{16}$	6.70	18.50	16	12	
$\frac{7}{8}$	7.00	20.20	16	12	
$\frac{15}{16}$	8.00	23.40	$16\frac{3}{4}$	12	
1	8.50	25.40	$16\frac{3}{4}$	12	No. 3
$\frac{11}{16}$	11.10	34.00	$20\frac{3}{4}$	16	
$\frac{11}{8}$	11.70	36.85	$20\frac{3}{4}$	16	
$\frac{13}{16}$	12.30	39.85	$20\frac{3}{4}$	16	
$\frac{11}{4}$	13.50	45.15	$21\frac{3}{4}$	16	
$\frac{5}{8}$	15.50	53.25	$23\frac{3}{4}$	18	
$\frac{13}{8}$	16.20	57.35	$23\frac{3}{4}$	18	No. 4
$\frac{7}{8}$	17.00	61.75	$23\frac{3}{4}$	18	
$\frac{11}{2}$	17.70	66.35	$23\frac{3}{4}$	18	
$\frac{9}{16}$	20.00	77.25	$25\frac{3}{4}$	20	
$\frac{5}{8}$	20.80	82.75	$25\frac{3}{4}$	20	
$\frac{11}{16}$	22.10	88.50	$25\frac{3}{4}$	20	
$\frac{3}{4}$	25.15	98.20	27	20	No. 5
$\frac{13}{16}$	26.40	104.65	27	20	
$\frac{7}{8}$	27.80	111.40	27	20	
$\frac{15}{16}$	29.10	118.40	27	20	
2	30.50	125.60	27	20	

Sizes, dimensions and tapers per foot not listed are special, subject to special prices.

USE "W & B" SOCKETS AND SLEEVES

Locomotive Taper or Rod Reamers

Square Shanks



No. 120A Carbon Steel

No. 220 "Diamond" High Speed

Regular Taper $\frac{1}{16}$ Inch Per Foot

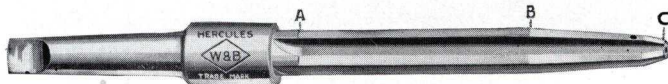
Diameter Inches Small End	Price Each		Length Over All Inches	Length of Flute Inches
	Carbon Steel	High Speed Steel		
$\frac{1}{4}$	\$2.30	\$ 3.70	$5\frac{5}{16}$	4
$\frac{3}{8}$	2.50	4.25	$5\frac{5}{16}$	4
$\frac{5}{16}$	2.50	4.25	$5\frac{5}{16}$	4
$\frac{1}{2}$	2.70	4.80	$5\frac{5}{16}$	4
$\frac{3}{8}$	3.00	5.35	$6\frac{5}{16}$	5
$\frac{1}{2}$	3.20	6.00	$6\frac{5}{16}$	5
$\frac{7}{16}$	3.20	6.50	$7\frac{5}{16}$	6
$\frac{1}{2}$	3.25	7.10	$7\frac{5}{16}$	6
$\frac{9}{16}$	3.70	7.65	$8\frac{5}{8}$	7
$\frac{1}{2}$	3.80	9.00	$9\frac{7}{8}$	8
$\frac{5}{8}$	4.00	10.00	$9\frac{7}{8}$	8
$\frac{3}{4}$	4.20	10.90	$9\frac{7}{8}$	8
$\frac{3}{4}$	5.80	15.25	$13\frac{7}{8}$	12
$\frac{13}{16}$	6.25	17.60	$14\frac{1}{4}$	12
$\frac{7}{8}$	6.50	19.20	$14\frac{1}{4}$	12
$\frac{15}{16}$	7.00	20.85	$14\frac{1}{4}$	12
1	7.50	22.65	$14\frac{1}{4}$	12
$1\frac{1}{16}$	10.00	30.80	$18\frac{1}{4}$	16
$1\frac{1}{8}$	10.60	33.30	$18\frac{1}{4}$	16
$1\frac{3}{16}$	11.15	36.00	$18\frac{1}{4}$	16
$1\frac{1}{4}$	11.70	38.90	$18\frac{1}{4}$	16
$1\frac{5}{16}$	13.50	46.50	$20\frac{1}{2}$	18
$1\frac{3}{8}$	14.15	50.00	$20\frac{1}{2}$	18
$1\frac{7}{16}$	14.80	53.85	$20\frac{1}{2}$	18
$1\frac{1}{2}$	15.50	57.85	$20\frac{1}{2}$	18
$1\frac{9}{16}$	17.70	68.15	$22\frac{1}{2}$	20
$1\frac{5}{8}$	18.40	73.00	$22\frac{1}{2}$	20
$1\frac{11}{16}$	19.50	78.15	$22\frac{1}{2}$	20
$1\frac{3}{4}$	20.65	83.50	$22\frac{1}{2}$	20
$1\frac{13}{16}$	21.65	89.00	$22\frac{1}{2}$	20
$1\frac{7}{8}$	22.80	94.85	$22\frac{1}{2}$	20
$1\frac{15}{16}$	24.00	100.90	$22\frac{1}{2}$	20
2	25.00	107.20	$22\frac{1}{2}$	20

Sizes, dimensions and tapers per foot not listed are special, subject to special prices.

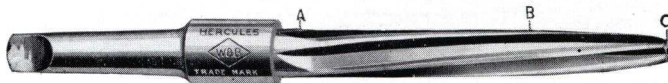
ALWAYS GIVE LIST NUMBER WHEN ORDERING

“Hercules” Taper Bridge, Boiler, or Car Reamers

Patented Nov. 26, 1918



No. 269 “Hercules” High Speed Straight Flute



No. 270 “Hercules” High Speed Spiral Flute

Diameter, Inches			Price Each High Speed	Length Over All Ins.	Length of Flute Ins.	Taper End Length Ins.	Shank Taper
A	B	C					
$\frac{13}{32}$	$\frac{13}{32}$	$\frac{15}{64}$	\$ 3.75	$7\frac{1}{2}$	$4\frac{3}{8}$	$1\frac{1}{2}$	} No. 2
$\frac{7}{16}$	$\frac{7}{16}$	$\frac{11}{64}$	3.75	$7\frac{1}{2}$	$4\frac{3}{8}$	$1\frac{1}{2}$	
$\frac{33}{64}$	$\frac{33}{64}$	$\frac{11}{64}$	4.00	$8\frac{1}{4}$	$5\frac{1}{8}$	2	
$\frac{1}{2}$	$\frac{1}{2}$	$\frac{11}{64}$	4.00	$8\frac{1}{4}$	$5\frac{1}{8}$	2	
$\frac{9}{16}$	$\frac{9}{16}$	$\frac{3}{16}$	4.25	$8\frac{1}{4}$	$5\frac{1}{8}$	$2\frac{1}{2}$	
$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{16}$	4.50	$10\frac{5}{16}$	$6\frac{1}{8}$	$2\frac{1}{2}$	
$\frac{11}{16}$	$\frac{11}{16}$	$\frac{1}{4}$	4.75	$10\frac{3}{8}$	$6\frac{1}{2}$	$2\frac{1}{4}$	} No. 3
$\frac{3}{4}$	$\frac{3}{4}$	$\frac{9}{16}$	5.00	$11\frac{1}{4}$	$7\frac{3}{8}$	3	
$\frac{13}{16}$	$\frac{13}{16}$	$\frac{7}{8}$	5.30	$13\frac{5}{16}$	$7\frac{3}{8}$	3	
$\frac{7}{8}$	$\frac{7}{8}$	$\frac{27}{64}$	5.70	$13\frac{5}{16}$	$7\frac{3}{8}$	3	
$\frac{15}{16}$	$\frac{15}{16}$	$\frac{29}{64}$	6.00	$13\frac{5}{16}$	$7\frac{3}{8}$	3	
1	1	$\frac{33}{64}$	6.50	$13\frac{5}{16}$	$7\frac{3}{8}$	3	
$1\frac{1}{16}$	$1\frac{1}{16}$	$\frac{9}{16}$	7.00	$13\frac{5}{16}$	$7\frac{3}{8}$	3	} No. 4
$1\frac{1}{8}$	$1\frac{1}{8}$	$\frac{37}{64}$	7.50	$13\frac{5}{16}$	$7\frac{3}{8}$	3	
$1\frac{3}{16}$	$1\frac{3}{16}$	$\frac{64}{64}$	8.00	$13\frac{5}{16}$	$7\frac{3}{8}$	3	
$1\frac{1}{4}$	$1\frac{1}{4}$	$\frac{11}{16}$	8.75	$14\frac{5}{8}$	$7\frac{3}{8}$	3	
$1\frac{5}{16}$	$1\frac{5}{16}$	$\frac{49}{64}$	9.50	$14\frac{5}{8}$	$7\frac{3}{8}$	3	
$1\frac{3}{8}$	$1\frac{3}{8}$	$\frac{53}{64}$	10.50	$14\frac{5}{8}$	$7\frac{3}{8}$	3	
$1\frac{7}{16}$	$1\frac{7}{16}$	$\frac{64}{64}$	12.00	$15\frac{1}{8}$	$7\frac{3}{8}$	3	} No. 4
$1\frac{1}{2}$	$1\frac{1}{2}$	$\frac{39}{64}$	14.00	$15\frac{1}{8}$	$7\frac{3}{8}$	3	

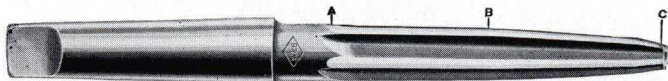
Reamers from $\frac{13}{32}$ -inch to $1\frac{1}{4}$ -inch have five flutes, $1\frac{5}{16}$ to $1\frac{1}{2}$ -inch have six flutes.

Thirty-second sizes not listed take list of next larger size.

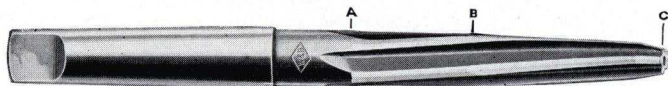
FURNISHED IN MILLIMETER SIZES, PRICES ON APPLICATION

Pilot Point eliminates necessity of drifting or drilling, saves time, increases output. Fitted with chrome nickel steel shanks, eliminates tang breakage.

“Hercules” High Speed Short Body Car Reamers



No. 271 “Hercules” High Speed Straight Flute



No. 272 “Hercules” High Speed Spiral Flute

DIAMETER, INCHES			Price Each	Length Over All Inches	Length Flute A to C	Taper End Length B to C	Shank Taper
A	B	C					
1/4	1/4	5/32	\$3.00	5 3/16	2 1/2	1 1/4	No. 1
5/32	5/32	11/32	3.00	5 3/16	2 1/2	1 1/4	
3/16	3/16	5/16	3.00	5 3/16	2 3/4	1 1/4	
11/32	11/32	13/32	3.20	5 3/16	2 3/4	1 1/4	
3/8	3/8	7/16	3.20	5 3/16	2 3/4	1 1/4	No. 2
13/32	13/32	15/32	3.35	6 1/8	2 3/4	1 1/4	
7/16	7/16	11/16	3.35	6 7/8	3 1/4	1 1/2	
15/32	15/32	17/32	3.50	7	3 1/2	1 1/2	
1/2	1/2	11/16	3.50	7 1/4	4	2	
17/32	17/32	19/32	3.70	7 1/2	4	2	
9/16	9/16	5/8	3.70	7 1/2	4	2	
5/8	5/8	11/8	3.75	8	4 1/2	2 1/2	
11/16	11/16	1/2	3.85	8 3/4	4 1/2	2 1/2	No. 3
3/4	3/4	5/8	4.00	9 1/8	5	2 1/2	
13/16	13/16	7/8	4.25	9 1/4	5	2 1/2	
7/8	7/8	15/16	4.55	9 1/2	5	2 1/2	
15/16	15/16	1	4.80	9 3/4	5	2 1/2	
1	1	1 1/16	5.20	9 7/8	5	2 1/2	
1 1/16	1 1/16	1 1/8	5.60	9 3/4	5	2 1/2	
1 1/8	1 1/8	1 1/4	6.00	9 1/2	5	2 1/2	
1 1/4	1 1/4	1 1/2	6.40	9 1/4	5	2 1/2	No. 4
1 1/2	1 1/2	1 3/4	7.00	9 1/2	5	2 1/2	
1 5/16	1 5/16	1 7/8	7.70	9 7/8	5	2 1/2	

For use in steel cars and other shallow work.

Pilot Point eliminates necessity of drifting or drilling, saves time, increases output. Fitted with chrome nickel steel shanks, eliminates tang breakage.

“Hercules” Short Body Car Drills



No. 552 High Speed

Diameter Inches	Price Each	Length Over All Inches	Length of Twist Inches	Shank Taper
11/16	\$3.00	8	3 1/2	3
13/16	4.00	8 1/2	4	3
15/16	5.50	8 1/2	4	3

Taper Bridge Reamers

(Air Drill)

With Taper Shanks

**No. 120L Carbon Steel****For Boiler Makers, Structural Iron, Bridge and Ship Builders**

Diameter, Inches			Price Each Carbon Steel	Length Over All Inches	Length of Flute	Taper End Length Inches	Shank Taper
A	B	C					
1/4	1/4	5/32	\$2.30	6 3/8	3 3/8	1 1/4	No. 1
9/32	9/32	11/64	2.35	6 3/4	3 3/4	1 1/4	
5/16	5/16	3/16	2.40	6 3/4	3 3/4	1 1/4	
11/32	11/32	13/64	2.45	7 1/4	4	1 1/2	
3/8	3/8	7/32	2.50	7 1/4	4	1 1/2	
13/32	13/32	15/64	2.55	8 1/4	4 3/8	1 1/2	No. 2
7/16	7/16	1/4	2.60	8 1/4	4 3/8	1 1/2	
15/32	15/32	9/32	2.65	9	5 1/8	2	
1 1/2	1 1/2	5/16	2.75	9	5 1/8	2	
9/16	9/16	3/8	2.90	9	5 1/8	2	
5/8	5/8	3/8	3.05	10	6 1/8	2 1/2	
11/16	11/16	3/8	3.20	11 3/4	7 1/8	2 1/2	No. 3
3/4	3/4	7/16	3.35	12	7 3/8	3	
13/16	13/16	1/2	3.50	12	7 3/8	3	
7/8	7/8	9/16	3.75	12	7 3/8	3	
15/16	15/16	5/8	4.00	12	7 3/8	3	
1	1	11/16	4.25	12	7 3/8	3	No. 3
1 1/16	1 1/16	3/4	4.50	12	7 3/8	3	
1 1/8	1 1/8	13/16	4.75	12	7 3/8	3	
1 3/16	1 3/16	7/8	5.00	12	7 3/8	3	
1 1/4	1 1/4	15/16	5.50	13	7 3/8	3	No. 4
1 5/16	1 5/16	1	6.00	13	7 3/8	3	
1 3/8	1 3/8	1 1/16	6.50	13	7 3/8	3	
1 7/16	1 7/16	1 1/8	7.00	13	7 3/8	3	
1 1/2	1 1/2	1 3/16	8.00	13	7 3/8	3	

Reamers from 1/4 inch to 1 1/4 inch have five flutes, 1 5/16 to 1 1/2 inch have six flutes.

Sizes, dimensions and styles not listed are special, subject to special prices.

USE "W & B" SOCKETS AND SLEEVES

Three Lip High Speed Ship Plate Countersinks



No. 600 "Diamond" High Speed

Standard Dimensions

Diameter $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2", $2\frac{1}{4}$ ". Barrel Length 6". Included Point Angle 37°, 45°, 53°, 60°, 78°. Made with No. 4 Taper Shanks.

We will furnish No. 3 Taper Shanks if ordered on sizes 2" and smaller, at customer's risk of tang breakage.

Prices quoted on receipt of specifications.

Useful Information

Included point angle 37° for bottom and keel plates.

Included point angle 45° for shell, side, deck plates.

Included point angle 53° for oil tank and oil tight holes.

Included point angle 45°-60° and 78° used for boiler plates.

Rivet Size	Hole Size	Countersunk Face, Diameter	Size Countersink Required
$\frac{5}{8}$ "	$\frac{11}{16}$ "	1"	$1\frac{1}{2}$ " or $1\frac{3}{4}$ "
$\frac{3}{4}$ "	$\frac{13}{16}$ "	$1\frac{3}{16}$ "	$1\frac{1}{2}$ " or $1\frac{3}{4}$ "
$\frac{7}{8}$ "	$\frac{15}{16}$ "	$1\frac{3}{8}$ "	$1\frac{3}{4}$ "
1"	$1\frac{1}{16}$ "	$1\frac{9}{16}$ "	$1\frac{3}{4}$ "
$1\frac{1}{8}$ "	$1\frac{3}{16}$ "	$1\frac{3}{4}$ "	2" or $2\frac{1}{4}$ "
$1\frac{1}{4}$ "	$1\frac{5}{16}$ "	$1\frac{15}{16}$ "	2" or $2\frac{1}{4}$ "

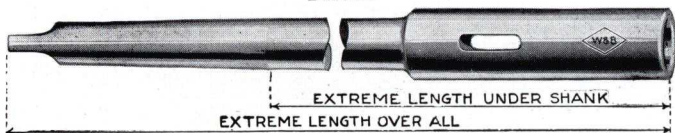
The countersink should extend through the whole thickness of the plate when plate is not more than $\frac{6}{10}$ " thick, and through nine-tenths of the plate when plate is over $\frac{6}{10}$ " thick.

We recommend that these countersinks be ground on a dry abrasive wheel 12" by 2" similar to Norton Standard grain 38-30, grade O. A clearance of 15° is suggested for drill press use, with increased clearance for use in busses or air machines. Care must be exercised that countersinks are not burned by holding too firmly against grinding wheel.

High Speed tools should never be dipped in water either during or after grinding.

"W & B" "Light Weight" Extension Sockets

Fitted



Made special to order; prices quoted on receipt of specifications.

Twelve-inch and eighteen-inch lengths under shank are used more than any others. Please specify length under shank or extreme length over all; also number of shank and hole.

USE "W & B" SOCKETS AND SLEEVES

Taper Bridge Reamers

With Square Shanks



No. 120C Carbon Steel

No. 268A "Diamond" High Speed

For Boiler Makers, Structural Iron, Bridge
and Ship Builders

Diameter, Inches			Price Each		Length Over All Ins.	Length of Flute Ins.	Tapered End Length Ins.
A	B	C	Carbon Steel	High Speed			
1/4	1/4	5/32	\$2.30	\$2.50	4 1/4	2 3/4	1
9/32	9/32	11/44	2.35	2.70	4 3/4	3	1
5/16	5/16	3/8	2.40	2.70	4 3/4	3	1
11/32	11/32	7/16	2.45	2.90	5 1/2	3 1/4	1 1/4
3/8	3/8	1/2	2.50	2.90	5 1/2	3 1/4	1 1/4
13/32	13/32	15/64	2.55	3.10	6 1/2	4	1 1/2
7/16	7/16	1/4	2.60	3.10	6 1/2	4	1 1/2
15/32	15/32	3/4	2.65	3.30	7 3/4	5 1/4	2
1/2	1/2	3/2	2.75	3.30	7 3/4	5 1/4	2
9/16	9/16	5/8	2.90	3.50	7 3/4	5 1/4	2
5/8	5/8	11/16	3.05	3.70	8 3/4	6 1/4	2 1/2
11/16	11/16	3/4	3.20	3.90	8 3/4	6 1/4	2 1/2
3/4	3/4	7/8	3.35	4.10	10 1/8	7 3/8	3
13/16	13/16	1/2	3.50	4.40	10 1/8	7 3/8	3
7/8	7/8	9/16	3.75	4.70	10 1/8	7 3/8	3
15/16	15/16	5/8	4.00	5.00	10 1/8	7 3/8	3
1	1	11/16	4.25	5.30	10 1/8	7 3/8	3
1 1/16	1 1/16	3/4	4.50	5.85	10 1/8	7 3/8	3
1 1/8	1 1/8	13/16	4.75	6.40	10 1/8	7 3/8	3
1 3/16	1 3/16	7/8	5.00	6.95	10 1/8	7 3/8	3
1 1/4	1 1/4	15/16	5.50	7.50	10 1/8	7 3/8	3
1 5/16	1 5/16	1	6.00	8.25	10 1/8	7 3/8	3
1 3/8	1 3/8	1 1/16	6.50	9.00	10 1/8	7 3/8	3
1 7/16	1 7/16	1 1/8	7.00	10.00	10 1/8	7 3/8	3
1 1/2	1 1/2	1 3/16	8.00	11.00	10 1/8	7 3/8	3

Reamers from 1/4 inch to 1 1/4 inch have five flutes, 1 5/16 to 1 1/2 inch have six flutes.

Sizes, dimensions and styles not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

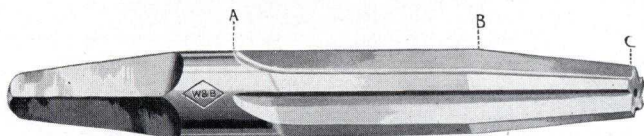
W&B

Established 1854
Whitman & Barnes

W&B

Taper Bridge Reamers

With Taper Square Shanks Fitting Ratchets



No. 127

Designed for use on Boilers, and Structural Iron Work where power is not available or the amount of work to be done is not sufficient to warrant rigging air tools.

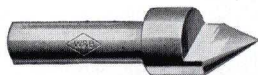
Diameter at			Price Each
A	B	C	
$\frac{9}{16}$	$\frac{9}{16}$	$\frac{3}{8}$	\$2.90
$\frac{11}{16}$	$\frac{11}{16}$	$\frac{3}{8}$	3.20
$\frac{13}{16}$	$\frac{13}{16}$	$\frac{1}{2}$	3.50
$\frac{15}{16}$	$\frac{15}{16}$	$\frac{5}{8}$	4.00
$1\frac{1}{16}$	$1\frac{1}{16}$	$\frac{3}{4}$	4.50

Length over all 7 inches. Length of Flute 5 inches. Length of Taper End 2 inches. Size of Shank, $\frac{3}{8} \times \frac{5}{8} \times 1\frac{1}{2}$ inches.

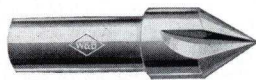
Shank size $\frac{1}{2} \times \frac{3}{4} \times 1\frac{3}{4}$ can be furnished if desired.

Center Reamers

60° Angle



Style A



Style B

No. 120M

Size Cut Inches	Diameter Shank Inches	Style A		Style B	
		Price Each	Price per Doz.	Price Each	Price per Doz.
$\frac{1}{4}$	$\frac{3}{16}$	\$0.25	\$3.00	\$0.30	\$3.60
$\frac{3}{8}$	$\frac{1}{4}$	.30	3.60	.35	4.20
$\frac{1}{2}$	$\frac{3}{8}$	.35	4.20	.40	4.80
$\frac{5}{8}$	$\frac{3}{8}$	.60	7.20	.65	7.80
$\frac{3}{4}$	$\frac{1}{2}$	.80	9.60	.85	10.20

Packed: Sizes $\frac{1}{4}$ to $\frac{3}{8}$ inch, one dozen; $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ inch, one-half dozen of a size in a wood box.

These Reamers having 72° or 82° inclusive angle furnished at regular prices.

Sizes, dimensions and styles not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Taper Pin Reamers



No. 120D

Taper 1/4-inch per Foot

Size No.	Price Each	Diameter at Small End Ins.	Length of Flute Ins.	Length Over All Ins.
000	\$1.50	.101	1 3/8	2
00	1.35	.114	1 1/2	2 1/4
0	1.00	.127	1 5/8	2 3/8
1	1.00	.146	1 3/4	2 1/2
2	1.25	.162	2	3
3	1.50	.183	2 1/4	3 1/2
4	1.75	.208	2 1/2	4
5	2.00	.240	3	4 1/2
6	2.25	.279	3 5/8	5
7	2.50	.331	4 1/2	6
8	3.00	.398	5 1/4	6 3/4
9	3.50	.482	6 1/8	8
10	4.50	.581	7	9
11	6.00	.706	8 1/4	11 1/4
12	7.50	.842	10	13 3/8
13	9.00	1.009	12	16
14	11.00	1.250	14	18 1/4

These Reamers all have the same Taper and the point of each will enter the hole reamed by the next size smaller.

Sizes 000 to No. 6 inclusive packed singly in envelopes, one dozen envelopes in a package.

Sizes, dimensions and styles not listed are special, subject to special prices.



“W & B” Taper Pin Reamer Sets

Set No. 60A contains one each No. 120D Taper Pin Reamers Nos. 0-1-2-3-4-5. Packed in a neat cloth covered case which keeps the Reamers clean and in good condition and which fits the pocket. Size of Reamer stamped in gold on the case.

List price for set including box \$9.50.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Bit Stock Taper Reamers



No. 120B

Taper 1 inch to the foot; diameter at large end of flutes is $\frac{1}{16}$ -inch larger than nominal size.

Nominal Size, Ins.	Price Each	Length Over All Ins.	Length of Flute Ins.	Nominal Size, Ins.	Price Each	Length Over All Ins.	Length of Flute Ins.
$\frac{3}{16}$	\$0.60	$3\frac{7}{8}$	$1\frac{3}{4}$	$\frac{5}{8}$	\$0.95	$6\frac{5}{8}$	$3\frac{1}{16}$
$\frac{1}{4}$	.60	4	$1\frac{7}{8}$	$\frac{11}{16}$	1.10	7	$3\frac{1}{16}$
$\frac{5}{16}$	.60	$4\frac{3}{4}$	$2\frac{1}{2}$	$\frac{3}{4}$	1.25	$7\frac{1}{4}$	$3\frac{1}{16}$
$\frac{3}{8}$	.65	$5\frac{1}{8}$	$3\frac{1}{16}$	$\frac{13}{16}$	1.50	$7\frac{5}{8}$	$3\frac{1}{2}$
$\frac{7}{16}$	.70	$5\frac{1}{2}$	$3\frac{1}{16}$	$\frac{7}{8}$	1.75	8	$3\frac{1}{2}$
$\frac{1}{2}$	.75	$5\frac{7}{8}$	$3\frac{1}{16}$	$\frac{15}{16}$	2.00	8	$3\frac{1}{2}$
$\frac{9}{16}$	.80	$6\frac{1}{4}$	$3\frac{1}{16}$	1	2.25	$8\frac{1}{8}$	$3\frac{1}{2}$

Packed: Sizes $\frac{3}{16}$ to $\frac{5}{8}$ inch, one dozen; $\frac{11}{16}$ to 1 inch, one-half dozen of a size in a box.

Sizes, dimensions and styles not listed are special, subject to special prices.

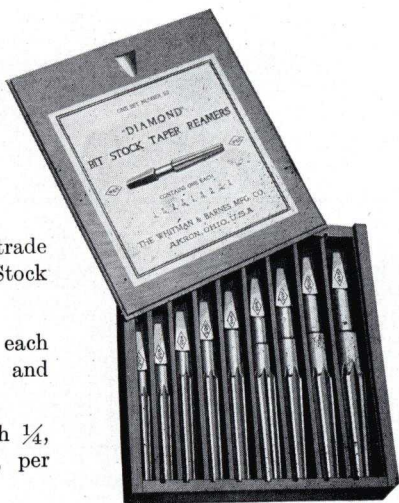
Bit Stock Taper Reamer Sets

No. 50

For the convenience of the trade we furnish "Diamond" Bit Stock Taper Reamers packed in sets.

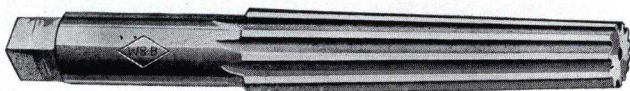
Set No. 50 contains one each $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$ and $\frac{3}{4}$ inch. Price, per set, \$8.25.

Set No. 50A contains one each $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$ and $\frac{1}{2}$ inch. Price, per set, \$3.75



ALWAYS GIVE LIST NUMBER WHEN ORDERING

Taper Reamers for Drill Sockets



No. 118 Finishing Reamer

No. of Taper	Price Each		Diameter Small End Ins.	Diameter Large End Ins.	Length Over All Ins.	Length of Flute Ins.	Taper per Foot Ins.
	Finishing	Roughing					
0	\$1.60	\$1.90	.250	.367	3 $\frac{3}{4}$	2 $\frac{1}{4}$	0.625
1	2.00	2.40	.367	.517	5 $\frac{1}{2}$	3	0.600
2	2.60	3.10	.569	.745	7	3 $\frac{1}{2}$	0.602
3	3.40	4.10	.775	.988	8	4 $\frac{1}{4}$	0.602
4	4.20	5.05	1.017	1.289	9	5 $\frac{1}{4}$	0.623
5	6.60	7.90	1.471	1.799	10	6 $\frac{1}{4}$	0.630
6	12.00	14.40	2.112	2.555	12	8 $\frac{1}{2}$	0.626
7	35.00	42.00	2.746	3.371	16	12	0.625



No. 118A Roughing Reamer

No. of Taper	Price Each		Diameter Small End Ins.	Diameter Large End Ins.	Length Over All Ins.	Length of Flute Ins.	Taper per Foot Ins.
	Finishing	Roughing					
0	\$1.60	\$1.90	.250	.367	3 $\frac{3}{4}$	2 $\frac{1}{4}$	0.625
1	2.00	2.40	.367	.517	5 $\frac{1}{2}$	3	0.600
2	2.60	3.10	.569	.745	7	3 $\frac{1}{2}$	0.602
3	3.40	4.10	.775	.988	8	4 $\frac{1}{4}$	0.602
4	4.20	5.05	1.017	1.289	9	5 $\frac{1}{4}$	0.623
5	6.60	7.90	1.471	1.799	10	6 $\frac{1}{4}$	0.630
6	12.00	14.40	2.112	2.555	12	8 $\frac{1}{2}$	0.626
7	35.00	42.00	2.746	3.371	16	12	0.625

No. 118A Roughing Reamers are made .010 inch smaller in diameter than Finishing Reamers.

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Hardened and Ground Lathe Mandrels



These Mandrels correspond in size to our Reamers, and will fit holes reamed by them. They are made of best quality tool steel, and are hardened and ground true to centers. The centers are not injured by driving. These Mandrels are slightly tapered, and the size of each is stamped at its larger end.

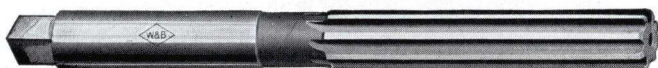
Diameter Inches	Price Each	Length Inches	Diameter Inches	Price Each	Length Inches
$\frac{1}{4}$	\$0.80	$3\frac{3}{4}$	$1\frac{15}{16}$	\$6.00	$10\frac{3}{4}$
$\frac{5}{16}$	.90	4	2	6.50	11
$\frac{3}{8}$	1.00	$4\frac{1}{4}$	$2\frac{1}{16}$	7.00	$11\frac{1}{2}$
$\frac{7}{16}$	1.10	$4\frac{1}{2}$	$2\frac{1}{8}$	7.50	$11\frac{1}{2}$
$\frac{1}{2}$	1.20	5	$2\frac{3}{16}$	8.00	12
$\frac{9}{16}$	1.30	$5\frac{1}{4}$	$2\frac{1}{4}$	8.50	12
$\frac{5}{8}$	1.40	$5\frac{1}{2}$	$2\frac{5}{16}$	9.00	12
$\frac{11}{16}$	1.50	$5\frac{3}{4}$	$2\frac{3}{8}$	9.50	12
$\frac{3}{4}$	1.60	6	$2\frac{7}{16}$	10.00	$12\frac{1}{2}$
$\frac{13}{16}$	1.70	$6\frac{1}{4}$	$2\frac{1}{2}$	10.50	$12\frac{1}{2}$
$\frac{7}{8}$	1.85	$6\frac{1}{2}$	$2\frac{9}{16}$	11.25	$12\frac{1}{2}$
$\frac{15}{16}$	2.00	$6\frac{3}{4}$	$2\frac{5}{8}$	12.00	$12\frac{1}{2}$
1	2.15	7	$2\frac{11}{16}$	12.75	13
$1\frac{1}{16}$	2.30	$7\frac{1}{4}$	$2\frac{3}{4}$	13.50	13
$1\frac{1}{8}$	2.45	$7\frac{1}{2}$	$2\frac{13}{16}$	14.25	13
$1\frac{3}{16}$	2.60	$7\frac{3}{4}$	$2\frac{7}{8}$	15.00	13
$1\frac{1}{4}$	2.80	8	$2\frac{15}{16}$	15.75	13
$1\frac{5}{16}$	3.00	$8\frac{1}{4}$	3	16.50	13
$1\frac{3}{8}$	3.25	$8\frac{1}{2}$	$3\frac{1}{8}$	18.00	14
$1\frac{7}{16}$	3.50	$8\frac{3}{4}$	$3\frac{1}{4}$	19.50	14
$1\frac{1}{2}$	3.75	9	$3\frac{3}{8}$	21.00	15
$1\frac{9}{16}$	4.00	$9\frac{1}{4}$	$3\frac{1}{2}$	23.00	15
$1\frac{5}{8}$	4.25	$9\frac{1}{2}$	$3\frac{5}{8}$	25.00	16
$1\frac{11}{16}$	4.50	$9\frac{3}{4}$	$3\frac{3}{4}$	27.00	16
$1\frac{3}{4}$	4.75	10	$3\frac{7}{8}$	29.00	17
$1\frac{13}{16}$	5.00	$10\frac{1}{4}$	4	31.00	17
$1\frac{7}{8}$	5.50	$10\frac{1}{2}$			

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING.

Hand Reamers

Eccentric Flutes Millimeter Sizes



No. 115E Carbon Steel No. 250E "Diamond" High Speed

Diameter Millimeters	Price Each		Length Over All Millimeters	Length of Flute Millimeters
	Carbon Steel	High Speed Steel		
3	\$1.00	\$ 3.00	76	38
3.5	1.10	3.25	79	39.5
4	1.10	3.25	82	41
4.5	1.20	3.25	89	44.5
5	1.25	3.50	92	46
5.5	1.30	3.50	95	47.5
6	1.40	3.50	102	51
6.5	1.40	3.75	105	52.5
7	1.45	3.75	108	54
7.5	1.50	3.75	112	56
8	1.50	4.25	117	58.5
8.5	1.55	4.25	121	60.5
9	1.60	4.25	124	62
9.5	1.60	4.25	127	63.5
10	1.70	4.75	133	66.5
10.5	1.70	4.75	136	68
11	1.75	4.75	140	70
11.5	1.85	5.25	143	71.5
12	1.85	5.25	149	74.5
12.5	1.90	5.25	152	76
13	1.95	5.75	155	77.5
13.5	1.95	5.75	162	81
14	2.00	5.75	165	82.5
14.5	2.10	6.25	168	84
15	2.10	6.25	171	85.5
15.5	2.20	6.25	178	89
16	2.20	6.75	182	91
16.5	2.30	6.75	187	93.5
17	2.40	6.75	190	95
17.5	2.40	7.25	200	100
18	2.50	7.25	206	103
18.5	2.60	7.25	209	104.5
19	2.60	7.25	213	106.5
19.5	2.70	7.75	222	111
20	2.75	7.75	226	113
20.5	2.80	7.75	230	115
21	2.90	8.50	233	116.5
21.5	3.00	8.50	241	120.5
22	3.10	8.50	246	123
22.5	3.20	9.50	251	125.5
23	3.25	9.50	256	128
23.5	3.35	9.50	260	130
24	3.40	10.50	267	133.5
24.5	3.55	10.50	272	136
25	3.60	10.50	274	138
26	3.80	11.50	281	140.5
27	4.00	12.75	290	145

(Continued on following page.)

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Hand Reamers

Eccentric Flutes

Millimeter Sizes



No. 115E Carbon Steel

No. 250E "Diamond" High Speed

Diameter Millimeters	Price Each		Length Over All Millimeters	Length of Flute Millimeters
	Carbon Steel	High Speed Steel		
28	\$4.25	\$12.75	295	147.5
29	4.45	14.25	300	150
30	4.60	14.25	306	152
31	4.75	15.75	311	155.5
32	4.90	17.25	314	157
33	5.15	17.25	316	158
34	5.40	18.75	318	159
35	5.60	20.50	323	161.5
36	5.90	20.50	325	162.5
37	6.15	22.25	329	164.5
38	6.40	22.25	330	165
39	6.60	24.00	330	165
40	6.90	25.75	330	165
41	7.20	25.75	330	165
42	7.40	27.50	343	171.5
43	7.60	29.50	343	171.5
44	7.90	29.50	343	171.5
45	8.10	31.50	343	171.5
46	8.40	31.50	343	171.5
47	8.60	33.50	356	178
48	8.90	35.75	356	178
49	9.20	35.75	356	178
50	9.40	38.00	356	178
51	9.70	40.75	368	184
52	10.00	40.75	368	184
53	10.20	43.50	368	184
54	10.40	46.25	368	184
55	10.70	46.25	381	190.5
56	11.00	49.00	381	190.5
57	11.30	49.00	381	190.5
58	11.60	51.75	381	190.5
59	12.00	55.00	381	190.5
60	12.30	55.00	381	190.5
61	12.55	58.25	394	197
62	12.90	61.50	394	197
63	13.30	61.50	394	197
64	13.70	64.75	394	197
65	14.00	64.75	394	197
66	14.30	68.00	406	203
67	14.80	71.25	406	203
68	15.40	71.25	406	203
69	15.80	74.50	406	203
70	16.40	77.75	406	203
71	17.00	77.75	419	209.5
72	17.40	81.00	419	209.5
73	17.80	81.00	419	209.5
74	18.40	84.25	419	209.5
75	19.00	87.50	419	209.5

Sizes and dimensions not listed are special, subject to special prices.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Expansion Reamers—Millimeter Sizes**No. 121E**

Diameter Milli- meters	Price Each	Length Over All Millimeters	Length of Flute Millimeters	Diameter Milli- meters	Price Each	Length Over All Millimeters	Length of Flute Millimeters
6	\$3.00	96.0	38.0	29	8.00	228.5	104.7
7	3.05	101.5	39.6	30	8.30	238.1	107.9
8	3.15	101.5	41.2	31	8.90	247.6	111.1
9	3.20	107.9	42.8	32	9.20	247.6	111.1
10	3.25	107.9	44.4	33	9.50	257.1	117.4
11	3.30	115.2	46.0	34	10.00	257.1	117.4
12	3.40	126.9	46.0	35	11.00	269.8	120.6
13	3.50	126.9	47.6	36	11.50	276.2	120.6
14	3.65	136.5	49.2	37	12.00	276.2	120.6
15	3.80	149.2	53.9	38	12.50	285.7	122.2
16	4.20	149.2	60.3	39	13.00	285.7	122.2
17	4.40	158.7	60.3	40	13.25	285.7	122.2
18	4.60	158.7	63.4	41	13.50	292.0	123.8
19	4.80	165.0	66.6	42	13.75	295.2	123.8
20	5.25	177.7	69.8	43	14.25	295.2	123.8
21	5.50	190.4	79.3	44	14.50	301.6	125.4
22	5.75	190.4	84.1	45	14.75	307.9	125.4
23	6.00	200.0	87.3	46	15.00	307.9	125.4
24	6.50	200.0	90.4	47	15.50	311.1	126.9
25	6.75	212.7	95.2	48	15.75	311.1	126.9
26	7.00	212.7	98.4	49	16.00	314.3	126.9
27	7.25	219.0	101.5	50	16.25	317.4	128.5
28	7.75	228.5	104.7				

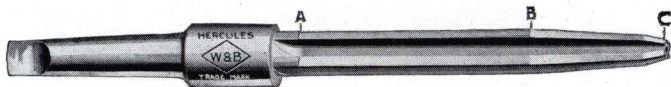
Limits of expansion recommended for these reamers are as follows:
 Sizes 6 m/m to 12 m/m, 0.15 m/m; 13 m/m to 25 m/m, 0.26 m/m; 26 m/m
 to 44 m/m, 0.31 m/m; 45 m/m to 50 m/m, 0.38 m/m.

Sizes and dimensions not listed are special, subject to special prices.

“Hercules” Millimeter Size Taper Bridge Reamers

Patented Nov. 26, 1918

Straight Flute Air Drill With Taper Shanks

**No. 269E “Hercules” High Speed**

These reamers furnished with straight or spiral flutes in millimeter
 sizes. Prices on request.

ALWAYS GIVE LIST NUMBER WHEN ORDERING

Tap Drill Sizes

The tap drills recommended here will give approximately 75 and 90 per cent of a full thread.

Tap Drill Sizes for U. S. Standard Threads

Size of Tap Inches	Threads per Inch	Drill Sizes		Size of Tap Inches	Threads per Inch	Drill Sizes	
		75% Thread Inches	90% Thread Inches			75% Thread Inches	90% Thread Inches
1/4	20	3/16	3/16	1 1/8	7	63/64	61/64
5/16	18	1/4	15/64	1 3/16	7	1 3/16	1 1/64
3/8	16	5/16	19/64	1 1/4	7	1 7/64	1 5/64
7/16	14	23/64	11/4	1 5/16	7	1 11/64	1 9/64
1/2	13	64/128	33/64	1 3/8	6	1 64/128	1 64/128
9/16	12	15/32	29/64	1 1/2	6	1 15/32	1 15/32
5/8	11	3/2	64/128	1 5/8	5 1/2	1 3/2	1 13/32
11/16	11	1 3/32	64/128	1 3/4	5	1 19/64	1 33/64
3/4	10	41/64	5/8	1 7/8	5	1 41/64	1 41/64
13/16	10	2 3/32	45/64	2	4 1/2	1 12/16	1 64/128
7/8	9	4 9/64	45/64	2 1/4	4 1/2	1 3/2	1 54/64
15/16	9	64/128	13/16	2 1/2	4	2 1/4	2 13/64
1	8	7/8	55/64	2 3/4	4	2 1/2	2 13/64
1 1/16	8	15/16	64/128				2 1/16

For V-Threads

Size of Tap Inches	Threads per Inch	Drill Sizes		Size of Tap Inches	Threads per Inch	Drill Sizes	
		75% Thread Inches	90% Thread Inches			75% Thread Inches	90% Thread Inches
1/4	20	3/16	11/64	1	8	53/64	51/64
5/16	18	1/4	15/64	1 1/16	8	64/128	55/64
3/8	16	5/16	19/64	1 1/8	7	37/64	29/64
7/16	14	1 3/32	32/64	1 3/16	7	15/16	29/64
1/2	12	3 5/64	33/64	1 1/4	7	3/2	32/64
9/16	12	2 9/64	7/16	1 5/16	7	1 1/16	3 3/32
5/8	11	1 1/2	31/64	1 3/8	6	1 1/8	1 5/64
11/16	11	9/16	64/128	1 1/2	6	1 3/32	1 64/128
3/4	10	5/8	35/64	1 5/8	5 1/2	1 5/8	1 15/64
13/16	10	11/16	64/128	1 3/4	5	1 5/4	1 31/64
7/8	9	4 7/64	32/64	1 7/8	5	1 31/64	1 7/16
15/16	9	64/128	45/64	2	4 1/2	1 39/64	1 9/16
		64/128	64/128			1 64/128	1 32/64



U. S. Standard



V-Thread



Whitworth

Tap Drill Sizes

For A. S. M. E. Machine Screws

Size of Tap and Threads Per Inch	Size of Drill for Outside Diam. of Screw	Size of Drill for Tap Hole 75% Thread	Size of Tap and Threads Per Inch	Size of Drill for Outside Diam. of Screw	Size of Drill for Tap Hole 75% Thread
0x80	1/16	56	9x24*	16	29
1x72	49	53	10x30	11	22
1x64*	49	54	10x32*	11	21
2x64	44	50	10x24*	11	26
2x56*	44	51	12x28	7 3 1/2	15
3x56	39	46	12x24*	7 3 1/2	17
3x48*	39	47	14x24	C	7
4x48	33	43	14x20*	C	11
4x40*	33	44	16x22	I	2
4x36*	33	45	16x20*	I	3
5x44	1/8	38	18x20	19 6 1/4 6 1/4	C
5x40*	1/8	39	18x18*	19 6 1/4 6 1/4	B
5x36*	1/8	40	20x20	P	H
6x40	28	33	20x18*	P	H
6x36*	28	34	22x18	S	L
6x32*	28	36	22x16*	S	K
7x36	24	31	24x16	3/8	N
7x32*	24	31	24x18*	3/8	O
7x30*	24	32	26x16	13 3 1/2	Q
8x36	19	29	26x14*	13 3 1/2	P
8x32*	19	30	28x14	7 16	S
8x30*	19	30	28x16*	7 16	T
9x32	16	26	30x14	29 6 1/4 6 1/4	V
9x30*	16	27	30x16*	29 6 1/4 6 1/4	W

*Special Threads.

For S. A. E. Standard Threads

Size of Tap Inches	Threads per Inch	Drill Sizes		Size of Tap Inches	Threads per Inch	Drill Sizes	
		75% Thread Inches	90% Thread Inches			75% Thread Inches	90% Thread Inches
1/4	28	7 3 1/2	13 6 1/4	3/4	16	11 16	43 6 1/4
5/16	24	I	17 6 1/4	7/8	14	13 16	51 6 1/4
3/8	24	Q	21 6 1/4	1	14	5 6 1/4	59 6 1/4
7/16	20	25 6 1/4	3 8	1 1/8	12	13 6 1/4	1 3 1/2
1/2	20	29 6 1/4	7 16	1 1/4	12	11 16	1 5
9/16	18	33 6 1/4	1 2	1 3/8	12	13 6 1/4	1 3 1/2
5/8	18	37 6 1/4	9 16	1 1/2	12	12 6 1/4	1 3 1/2
11/16	16	5 8	39 6 1/4				

Tap Drill Sizes—For “Whitworth” Standard Threads

Size of Tap Inches	Threads per Inch	Drill Sizes		Size of Tap Inches	Threads per Inch	Drill Sizes	
		75% Thread Inches	90% Thread Inches			75% Thread Inches	90% Thread Inches
1/4	20	13/64	3/16	7/8	9	49/64	3/4
5/16	18	1/4	15/64	1	8	7/8	35/64
3/8	16	5/16	49/64	1 1/8	7	63/64	31/32
7/16	14	23/64	11/32	1 1/4	7	1 6/4	1 5/8
1/2	13	13/32	25/64	1 3/8	6	1 7/32	1 3/16
9/16	12	33/64	15/32	1 1/2	6	1 11/32	1 5/16
5/8	11	3 1/4	33/32	1 5/8	5 1/2	1 7/16	1 6/8
11/16	11	3 3/8	3 7/8	1 3/4	5	1 35/64	1 33/64
3/4	10	3 1/2	5 5/8	1 7/8	5	1 11/16	1 6/4
13/16	10	2 3/2	11/16	2	4 1/2	1 49/64	1 33/2

For Pipe Taps

Size of Tap Inches	Briggs Standard		British Standard		Size of Tap Inches	Briggs Standard		British Standard	
	Threads per Inch	Drill Sizes Inches	Threads per Inch	Drill Sizes Inches		Threads per Inch	Drill Sizes Inches	Threads per Inch	Drill Sizes Inches
1/8	27	21/64	28	5/16	2 1/4	...	...	11	2 13/32
1/4	18	6 3/4	19	7/16	2 1/2	8	29/16	11	2 25/32
3/8	18	9/16	19	9/16	2 3/4	...	...	11	3 3/32
1/2	14	11/16	14	23/32	3	8	33/16	11	3 9/32
5/8	...	...	14	33/32	3 1/4	...	...	11	3 17/32
3/4	14	29/32	14	3 1/2	3 1/2	8	3 11/16	11	3 3/4
7/8	...	...	14	3 5/8	3 3/4	...	...	11	4
1	11 1/2	1 1/8	11	1 5/32	4	8	43/16	11	4 1/4
1 1/4	11 1/2	1 15/32	11	1 1/2	4 1/2	8	4 11/16	11	4 3/4
1 1/2	11 1/2	1 23/32	11	1 23/32	5	8	5 1/4	11	5 1/4
1 3/4	...	...	11	1 31/32	5 1/2	...	...	11	5 3/4
2	11 1/2	2 3/16	11	2 3/16	6	8	6 5/16	11	6 1/4

The U. S. Standard System of Bolts and Nuts

As recommended by the Franklin Institute, of Philadelphia, December 15, 1864.

Diameter of Bolt Ins.	No. of Threads per Inch	Diam. of Hole in Nut, Ins.	Short Diam. of Nut* Ins.	Diameter of Hole in Ins.	No. of Threads per Inch	Diam. of Hole in Nut, Ins.	Short Diam. of Nut* Ins.
1/4	20	.185	1/2	2	4 1/2	1.712	3 1/8
5/16	18	.240	19/32	2 1/4	4 1/2	1.962	3 1/2
3/8	16	.294	11/16	2 1/2	4	2.175	3 7/8
7/16	14	.344	25/32	2 3/4	4	2.425	4 1/4
1/2	13	.400	7/8	3	3 1/2	2.628	4 5/8
9/16	12	.454	31/32	3 1/4	3 1/2	2.878	5
5/8	11	.507	1 1/16	3 1/2	3 1/4	3.100	5 3/8
3/4	10	.620	1 1/4	3 3/4	3	3.317	5 3/4
7/8	9	.731	1 7/16	4	3	3.566	6 1/8
1	8	.837	1 5/8	4 1/4	2 7/8	3.825	6 1/2
1 1/8	7	.940	1 13/16	4 1/2	2 3/4	4.027	6 7/8
1 1/4	7	1.065	2	4 3/4	2 5/8	4.255	7 1/4
1 3/8	6	1.160	2 3/16	5	2 1/2	4.480	7 5/8
1 1/2	6	1.284	2 3/8	5 1/4	2 1/2	4.730	8
1 5/8	5 1/2	1.389	2 9/16	5 1/2	2 3/8	5.053	8 3/8
1 3/4	5	1.490	2 3/4	5 3/4	2 3/8	5.203	8 3/4
1 7/8	5	1.615	2 15/16	6	2 1/4	5.423	9 1/8

*Or size of wrench opening.

Decimal Equivalents of Regular Sizes

Inch	Decimal	Wire	M. M.	Inch	Decimal	Wire	M. M.	Inch	Decimal	Wire	M. M.
	.0135	80			.0748		1.9		.1520	24	
	.0145	79			.0760	48			.1535		3.9
$\frac{1}{64}$	.0156			$\frac{5}{64}$	.0781			$\frac{5}{32}$	.1540	23	
	.0160	78			.0785	47				.1562	
	.0180	77			.0787		2.		.1570	22	
	.0197		.5		.0810	46			.1575		4.
	.0200	76			.0820	45			.1590	21	
	.0210	75			.0827		2.1		.1610	20	
	.0225	74			.0860	44			.1614		4.1
	.0236		.6		.0866		2.2		.1654		4.2
	.0240	73			.0885		2.25		.1660	19	
	.0250	72			.0890	43			.1673		4.25
	.0260	71			.0905		2.3		.1693		4.3
	.0276		.7		.0935	42			.1695	18	
	.0280	70		$\frac{3}{32}$	.0937			$\frac{11}{64}$	.1719		
	.0292	69			.0945		2.4			.1730	17
	.0296		.75		.0960	41			.1732		4.4
	.0310	68			.0980	40			.1770	16	
$\frac{1}{32}$	.0313				.0984		2.5		.1771		4.5
	.0315		.8		.0995	39			.1800	15	
	.0320	67			.1015	38			.1811		4.6
	.0330	66			.1024		2.6		.1820	14	
	.0350	65			.1040	37			.1850	13	4.7
	.0354		.9		.1063		2.7		.1871		4.75
	.0360	64			.1065	36		$\frac{3}{16}$	.1875		
	.0370	63			.1083		2.75			.1890	12	4.8
	.0380	62		$\frac{7}{64}$	.1093				.1910	11	
	.0390	61			.1100	35			.1929		4.9
	.0394		1.		.1102		2.8		.1935	10	
	.0400	60			.1110	34			.1960	9	
	.0410	59			.1130	33			.1968		5
	.0420	58			.1142		2.9		.1990	8	
	.0430	57			.1160	32			.2008		5.1
	.0432		1.1		.1181		3.		.2010	7	
$\frac{3}{64}$	.0465	56			.1200	31		$\frac{13}{64}$	.2031		
	.0469				.1220		3.1			.2040	6
	.0472		1.2	$\frac{1}{8}$	.1250				.2047		5.2
	.0492		1.25		.1260		3.2		.2055	5	
	.0512		1.3		.1279		3.25		.2066		5.25
	.0520	55			.1285	30			.2087		5.3
	.0550	54			.1299		3.3		.2090	4	
	.0551		1.4		.1339		3.4		.2126		5.4
	.0591		1.5		.1360	29			.2130	3	
	.0595	53			.1378		3.5		.2165		5.5
$\frac{1}{16}$	.0625				.1405	28		$\frac{7}{32}$	.2187		
	.0629		1.6	$\frac{9}{64}$.1406					.2205		5.6
	.0635	52			.1417		3.6		.2210	2	
	.0669		1.7		.1440	27			.2244		5.7
	.0670	51			.1457		3.7		.2264		5.75
	.0690		1.75		.1470	26			.2280	1	
	.0700	50			.1477		3.75		.2283		5.8
	.0709		1.8		.1495	25			.2323		5.9
	.0730	49			.1496		3.8				

Decimal Equivalents of Regular Sizes

In.	Decimal	Letter	M. M.	In.	Decimal	Letter	M. M.	In.	Decimal	M. M.
$\frac{15}{64}$	.2340	A			.3320	Q		$\frac{9}{16}$	.5625	
	.2344				.3346		8.5		.5709	14.5
	.2362		6.		.3386		8.6	$\frac{27}{64}$	.5781	
	.2380	B			.3390	R			.5906	15.
	.2401		6.1		.3425		8.7	$\frac{19}{32}$	.5937	
	.2420	C		$\frac{11}{32}$	.3437			$\frac{39}{64}$	.6094	
	.2441		6.2		.3446		8.75		.6102	15.5
	.2460		6.25		.3465		8.8	$\frac{5}{8}$	.6250	
	.2460	D			.3480	S			.6299	16.
	.2480		6.3		.3504		8.9	$\frac{41}{64}$	.6406	
$\frac{1}{4}$	.2500	E			.3543		9.		.6496	16.5
	.2520		6.4		.3580	T		$\frac{21}{32}$	.6562	
	.2559		6.5		.3583		9.1		.6693	17.
	.2570	F		$\frac{23}{64}$	.3594			$\frac{43}{64}$	.6719	
	.2598		6.6		.3622		9.2	$\frac{11}{16}$	.6875	
	.2610	G			.3641		9.25		.6890	17.5
	.2638		6.7		.3661		9.3	$\frac{45}{64}$	.7031	
	.2656				.3680	U			.7087	18.
	.2658		6.75		.3701		9.4	$\frac{23}{32}$	.7187	
	.2660	H			.3740		9.5		.7283	18.5
$\frac{17}{64}$	.2677		6.8	$\frac{3}{8}$	.3750			$\frac{47}{64}$	.7344	
	.2716		6.9		.3770	V			.7480	19.
	.2720	I			.3780		9.6	$\frac{3}{4}$	.7500	
	.2756		7.		.3819		9.7	$\frac{49}{64}$	.7656	
	.2770	J			.3839		9.75		.7677	19.5
	.2795		7.1		.3858		9.8	$\frac{25}{32}$	.7812	
	.2811	K			.3860	W			.7874	20.
	.2812				.3898		9.9	$\frac{51}{64}$	.7969	
	.2835		7.2	$\frac{25}{64}$	.3906		10.	$\frac{13}{16}$	.8071	20.5
	.2854		7.25		.3937				.8125	
$\frac{9}{32}$	.2874		7.3		.3970	X			.8268	21.
	.2900	L			.4040	Y		$\frac{53}{64}$	.8281	
	.2913		7.4	$\frac{13}{32}$	.4062			$\frac{27}{32}$	.8437	
	.2950	M			.4130	Z			.8465	21.5
	.2953		7.5		.4134		10.5	$\frac{55}{64}$	.8594	
	.2968			$\frac{27}{64}$	.4219				.8661	22.
	.2992		7.6		.4330		11.	$\frac{7}{8}$	.8750	
	.3020	N		$\frac{7}{16}$	.4375				.8858	22.5
	.3031		7.7		.4528		11.5	$\frac{57}{64}$	.8906	
	.3052		7.75	$\frac{29}{64}$	.4531				.9055	23.
$\frac{13}{64}$	.3071		7.8	$\frac{15}{32}$	.4687			$\frac{29}{32}$	.9062	
	.3110		7.9		.4724		12.	$\frac{59}{64}$	.9219	
	.3125			$\frac{31}{64}$	.4843				.9252	23.5
	.3150		8.		.4921		12.5	$\frac{15}{16}$	.9375	
	.3160	O		$\frac{1}{2}$	.5000				.9449	24.
	.3189		8.1		.5118		13.	$\frac{61}{64}$	.9531	
	.3228		8.2	$\frac{33}{64}$	.5156				.9646	24.5
	.3230	P		$\frac{17}{32}$	.5312			$\frac{31}{32}$	.9687	
	.3248		8.25		.5315		13.5		.9843	25.
	.3268		8.3	$\frac{35}{64}$	.5469			$\frac{63}{64}$	.9844	
$\frac{21}{64}$	.3281				.5512		14.	1	1.0000	
	.3307		8.4							

Decimal Equivalents of Regular Sizes

In.	Decimal	M. M.	In.	Decimal	M. M.	In.	Decimal	M. M.
	1.0040	25.5		1.4370	36.5	$1\frac{55}{64}$	1.8594	
$1\frac{1}{64}$	1.0156		$1\frac{7}{16}$	1.4375			1.8701	47.5
	1.0236	26.	$1\frac{9}{64}$	1.4531		$1\frac{7}{8}$	1.8750	
$1\frac{1}{32}$	1.0312			1.4567	37.		1.8898	48.
	1.0433	26.5	$1\frac{15}{32}$	1.4687		$1\frac{57}{64}$	1.8906	
$1\frac{3}{64}$	1.0469			1.4764	37.5	$1\frac{9}{32}$	1.9062	
$1\frac{1}{16}$	1.0625		$1\frac{31}{64}$	1.4844			1.9095	48.5
	1.0630	27.		1.4961	38.	$1\frac{59}{64}$	1.9219	
$1\frac{5}{64}$	1.0781		$1\frac{11}{2}$	1.5000			1.9291	49.
	1.0827	27.5	$1\frac{33}{64}$	1.5156		$1\frac{15}{16}$	1.9375	
$1\frac{3}{32}$	1.0937			1.5158	38.5		1.9488	49.5
	1.1024	28.	$1\frac{17}{32}$	1.5312		$1\frac{31}{64}$	1.9531	
$1\frac{7}{64}$	1.1094			1.5354	39.		1.9685	50.
	1.1220	28.5	$1\frac{35}{64}$	1.5469		$1\frac{31}{32}$	1.9687	
$1\frac{1}{6}$	1.1250			1.5551	39.5	$1\frac{9}{32}$	1.9844	
$1\frac{9}{64}$	1.1406		$1\frac{9}{16}$	1.5625			1.9882	50.5
	1.1417	29.		1.5748	40.	2	2.0000	
$1\frac{5}{32}$	1.1562		$1\frac{37}{64}$	1.5781			2.0079	51.
	1.1614	29.5	$1\frac{39}{32}$	1.5937		$2\frac{1}{64}$	2.0156	
$1\frac{11}{64}$	1.1719			1.5945	40.5		2.0276	51.5
	1.1811	30.	$1\frac{39}{64}$	1.6094		$2\frac{1}{32}$	2.0312	
$1\frac{3}{16}$	1.1875			1.6142	41.	$2\frac{3}{64}$	2.0469	
	1.2008	30.5	$1\frac{5}{8}$	1.6250			2.0473	52.
$1\frac{13}{64}$	1.2031			1.6339	41.5	$2\frac{1}{16}$	2.0625	
$1\frac{3}{32}$	1.2187		$1\frac{11}{4}$	1.6406			2.0669	52.5
	1.2205	31.		1.6536	42.	$2\frac{5}{64}$	2.0781	
$1\frac{15}{64}$	1.2344		$1\frac{21}{32}$	1.6562			2.0867	53.
	1.2402	31.5	$1\frac{13}{64}$	1.6719		$2\frac{3}{32}$	2.0937	
$1\frac{1}{4}$	1.2500			1.6732	42.5		2.1063	53.5
	1.2599	32.	$1\frac{11}{16}$	1.6875		$2\frac{7}{64}$	2.1094	
$1\frac{17}{64}$	1.2656			1.6929	43.	$2\frac{1}{8}$	2.1250	
	1.2795	32.5	$1\frac{45}{64}$	1.7031			2.1260	54.
$1\frac{9}{32}$	1.2812			1.7126	43.5	$2\frac{9}{64}$	2.1406	
$1\frac{19}{64}$	1.2969		$1\frac{23}{32}$	1.7187			2.1457	54.5
	1.2992	33.		1.7323	44.	$2\frac{5}{32}$	2.1562	
$1\frac{5}{16}$	1.3125		$1\frac{47}{64}$	1.7344			2.1654	55.
	1.3189	33.5	$1\frac{3}{4}$	1.7500		$2\frac{11}{64}$	2.1719	
$1\frac{61}{64}$	1.3281			1.7520	44.5		2.1850	55.5
	1.3386	34.	$1\frac{49}{64}$	1.7656		$2\frac{3}{16}$	2.1875	
$1\frac{11}{32}$	1.3437			1.7717	45.	$2\frac{13}{64}$	2.2031	
	1.3583	34.5	$1\frac{25}{32}$	1.7812			2.2047	56.
$1\frac{23}{64}$	1.3594			1.7914	45.5	$2\frac{7}{32}$	2.2187	
$1\frac{3}{8}$	1.3750		$1\frac{51}{64}$	1.7969			2.2244	56.5
	1.3780	35.		1.8110	46.	$2\frac{15}{64}$	2.2344	
$1\frac{25}{64}$	1.3906		$1\frac{13}{16}$	1.8125			2.2441	57.
	1.3977	35.5	$1\frac{53}{64}$	1.8281		$2\frac{1}{4}$	2.2500	
$1\frac{13}{32}$	1.4062			1.8307	46.5		2.2638	57.5
	1.4173	36.	$1\frac{27}{32}$	1.8437		$2\frac{17}{64}$	2.2656	
$1\frac{27}{64}$	1.4219			1.8504	47.	$2\frac{3}{32}$	2.2812	

Decimal Equivalents of Regular Sizes

In.	Decimal	M. M.	In.	Decimal	M. M.	In.	Decimal
	2.2835	58.		2.7165	69.	$3\frac{1}{4}$	3.2500
$2\frac{1}{8}$	2.2969		$2\frac{3}{32}$	2.7187		$3\frac{1}{8}$	3.2656
	2.3031	58.5	$2\frac{1}{2}$	2.7344		$3\frac{1}{4}$	3.2812
$2\frac{1}{4}$	2.3125		$2\frac{1}{4}$	2.7362	69.5	$3\frac{3}{8}$	3.2969
	2.3228	59.	$2\frac{3}{4}$	2.7500		$3\frac{1}{2}$	3.3125
$2\frac{1}{2}$	2.3281			2.7559	70.	$3\frac{5}{8}$	3.3281
	2.3425	59.5	$2\frac{1}{2}$	2.7656		$3\frac{3}{4}$	3.3437
$2\frac{3}{4}$	2.3437		$2\frac{25}{32}$	2.7756	70.5	$3\frac{7}{8}$	3.3594
$2\frac{1}{2}$	2.3594	60.		2.7812		$3\frac{1}{2}$	3.3750
	2.3622		$2\frac{5}{16}$	2.7953	71.	$3\frac{1}{4}$	3.3906
$2\frac{3}{8}$	2.3750	60.5	$2\frac{1}{4}$	2.7969		$3\frac{3}{8}$	3.4062
	2.3819		$2\frac{1}{8}$	2.8125		$3\frac{1}{2}$	3.4219
$2\frac{1}{2}$	2.3906	61.		2.8150	71.5	$3\frac{1}{4}$	3.4375
	2.4016		$2\frac{5}{8}$	2.8281		$3\frac{1}{2}$	3.4531
$2\frac{1}{4}$	2.4062	61.5	$2\frac{1}{2}$	2.8346	72.	$3\frac{3}{8}$	3.4687
	2.4213		$2\frac{1}{4}$	2.8437		$3\frac{1}{4}$	3.4844
$2\frac{1}{2}$	2.4219		$2\frac{5}{8}$	2.8543	72.5	$3\frac{1}{2}$	3.5000
$2\frac{1}{4}$	2.4375	62.	$2\frac{1}{2}$	2.8594		$3\frac{3}{8}$	3.5156
	2.4409		$2\frac{3}{4}$	2.8740	73.	$3\frac{1}{2}$	3.5312
$2\frac{3}{4}$	2.4531	62.5	$2\frac{7}{8}$	2.8750		$3\frac{3}{8}$	3.5469
	2.4606		$2\frac{5}{4}$	2.8906		$3\frac{1}{2}$	3.5625
$2\frac{1}{2}$	2.4687	63.	$2\frac{3}{2}$	2.8937	73.5	$3\frac{3}{4}$	3.5781
	2.4803		$2\frac{3}{2}$	2.9062		$3\frac{3}{8}$	3.5937
$2\frac{3}{4}$	2.4844	63.5	$2\frac{5}{8}$	2.9134	74.	$3\frac{3}{4}$	3.6093
	2.5000		$2\frac{5}{4}$	2.9219		$3\frac{5}{8}$	3.6250
$2\frac{1}{2}$	2.5156	64.	$2\frac{1}{2}$	2.9331	74.5	$3\frac{1}{4}$	3.6406
	2.5197		$2\frac{1}{2}$	2.9375		$2\frac{1}{2}$	3.6562
$2\frac{1}{4}$	2.5312	64.5		2.9527	75.	$3\frac{3}{4}$	3.6719
	2.5394		$2\frac{1}{4}$	2.9531		$3\frac{1}{2}$	3.6875
$2\frac{3}{4}$	2.5469	65.	$2\frac{1}{2}$	2.9687	75.5	$3\frac{5}{8}$	3.7031
	2.5590		$2\frac{1}{2}$	2.9724		$3\frac{3}{4}$	3.7187
$2\frac{1}{2}$	2.5625		$2\frac{5}{4}$	2.9844		$3\frac{1}{2}$	3.7344
$2\frac{3}{4}$	2.5781	65.5	$2\frac{3}{4}$	2.9921	76.	$3\frac{3}{4}$	3.7500
	2.5787		3	3.0000		$3\frac{5}{8}$	3.7656
$2\frac{1}{4}$	2.5937	66.	$3\frac{1}{4}$	3.0156		$3\frac{1}{2}$	3.7812
	2.5984		$3\frac{1}{2}$	3.0312		$3\frac{5}{4}$	3.7969
$2\frac{3}{4}$	2.6093	66.5	$3\frac{3}{4}$	3.0469		$3\frac{3}{4}$	3.8125
	2.6181		$3\frac{1}{2}$	3.0625		$3\frac{5}{8}$	3.8281
$2\frac{5}{8}$	2.6250	67.	$3\frac{1}{4}$	3.0781		$3\frac{3}{2}$	3.8437
	2.6378		$3\frac{3}{2}$	3.0937		$3\frac{5}{4}$	3.8594
$2\frac{1}{4}$	2.6406	67.5	$3\frac{1}{4}$	3.1094		$3\frac{7}{8}$	3.8750
	2.6562		$3\frac{1}{8}$	3.1250		$3\frac{1}{4}$	3.8906
$2\frac{3}{4}$	2.6575	68.	$3\frac{9}{8}$	3.1406		$3\frac{2}{2}$	3.9062
	2.6719		$3\frac{3}{2}$	3.1562		$3\frac{5}{4}$	3.9219
$2\frac{1}{2}$	2.6772	68.5	$3\frac{1}{4}$	3.1719		$3\frac{1}{2}$	3.9375
	2.6875		$3\frac{1}{2}$	3.1875		$3\frac{1}{4}$	3.9531
$2\frac{1}{4}$	2.6968	68.5	$3\frac{1}{2}$	3.2031		$3\frac{3}{2}$	3.9687
	2.7031		$3\frac{1}{2}$	3.2187		$3\frac{5}{4}$	3.9844
$2\frac{1}{2}$			$3\frac{1}{4}$	3.2344		4	4.0000

Values of Fractional Sizes Expressed in Millimeters

Fractional Sizes		1 Inch	2 Inch	3 Inch	4 Inch	5 Inch	6 Inch
		25.4	50.8	76.2	101.6	127.	152.4
$\frac{1}{64}$	0.40	25.80	51.20	76.60	102.	127.39	152.79
$\frac{1}{32}$	0.79	26.19	51.59	76.99	102.39	127.79	153.19
$\frac{3}{64}$	1.19	26.59	51.99	77.39	102.79	128.19	153.59
$\frac{1}{16}$	1.59	26.99	52.39	77.79	103.19	128.59	153.98
$\frac{5}{64}$	1.98	27.38	52.78	78.18	103.58	128.98	154.38
$\frac{3}{32}$	2.38	27.78	53.18	78.58	103.98	129.38	154.78
$\frac{7}{64}$	2.77	28.17	53.58	78.98	104.37	129.78	155.18
$\frac{1}{8}$	3.17	28.57	53.97	79.37	104.77	130.17	155.57
$\frac{9}{64}$	3.57	28.97	54.37	79.77	105.17	130.57	155.97
$\frac{5}{32}$	3.97	29.37	54.77	80.17	105.57	130.97	156.37
$\frac{11}{64}$	4.37	29.76	55.16	80.56	105.96	131.36	156.76
$\frac{3}{16}$	4.76	30.16	55.56	80.96	106.36	131.76	157.16
$\frac{13}{64}$	5.16	30.56	55.96	81.36	106.76	132.16	157.56
$\frac{7}{32}$	5.56	30.96	56.36	81.75	107.16	132.55	157.95
$\frac{15}{64}$	5.95	31.35	56.75	82.15	107.55	132.95	158.35
$\frac{1}{4}$	6.35	31.75	57.15	82.55	107.95	133.35	158.75
$\frac{17}{64}$	6.75	32.15	57.55	82.95	108.34	133.74	159.14
$\frac{9}{32}$	7.14	32.54	57.94	83.34	108.74	134.14	159.54
$\frac{19}{64}$	7.54	32.94	58.34	83.74	109.14	134.54	159.94
$\frac{5}{16}$	7.94	33.34	58.74	84.14	109.54	134.94	160.33
$\frac{21}{64}$	8.33	33.73	59.13	84.53	109.93	135.33	160.73
$\frac{11}{32}$	8.73	34.13	59.53	84.93	110.33	135.73	161.13
$\frac{23}{64}$	9.13	34.53	59.93	85.33	110.73	136.13	161.53
$\frac{3}{8}$	9.52	34.92	60.32	85.72	111.12	136.52	161.92
$\frac{25}{64}$	9.92	35.32	60.72	86.12	111.52	136.92	162.32
$\frac{13}{32}$	10.32	35.72	61.12	86.52	111.92	137.32	162.72
$\frac{27}{64}$	10.72	36.11	61.51	86.91	112.31	137.71	163.11
$\frac{1}{16}$	11.11	36.51	61.91	87.31	112.71	138.11	163.51
$\frac{29}{64}$	11.51	36.91	62.31	87.71	113.11	138.51	163.91
$\frac{15}{32}$	11.91	37.31	62.71	88.1	113.5	138.9	164.3
$\frac{31}{64}$	12.3	37.7	63.1	88.5	113.9	139.3	164.7
$\frac{1}{2}$	12.7	38.1	63.5	88.9	114.3	139.7	165.1

(Continued on next page)

1 Millimeter = .03937 inch.

Values of Fractional Sizes Expressed in Millimeters

(Continued)

Fractional Sizes		1 Inch	2 Inch	3 Inch	4 Inch	5 Inch	6 Inch
$\frac{33}{64}$	13.10	38.49	63.90	89.3	114.69	140.09	165.49
$\frac{17}{32}$	13.49	38.89	64.29	89.69	115.09	140.49	165.89
$\frac{35}{64}$	13.89	39.29	64.69	90.09	115.49	140.89	166.29
$\frac{9}{16}$	14.29	39.69	65.09	90.49	115.89	141.29	166.68
$\frac{37}{64}$	14.68	40.08	65.48	90.88	116.28	141.68	167.08
$\frac{19}{32}$	15.08	40.48	65.88	91.28	116.68	142.08	167.48
$\frac{39}{64}$	15.48	40.88	66.28	91.68	117.08	142.48	167.88
$\frac{5}{8}$	15.87	41.27	66.67	92.07	117.47	142.87	168.27
$\frac{41}{64}$	16.27	41.67	67.07	92.47	117.87	143.27	168.67
$\frac{21}{32}$	16.67	42.07	67.47	92.87	118.27	143.67	169.07
$\frac{32}{64}$	17.07	42.46	67.86	93.26	118.66	144.06	169.46
$\frac{11}{16}$	17.46	42.86	68.26	93.66	119.06	144.46	169.86
$\frac{45}{64}$	17.86	43.26	68.66	94.06	119.46	144.86	170.26
$\frac{23}{32}$	18.26	43.66	69.05	94.45	119.85	145.25	170.65
$\frac{47}{64}$	18.65	44.05	69.45	94.85	120.25	145.65	171.05
$\frac{5}{4}$	19.05	44.45	69.85	95.25	120.65	146.05	171.45
$\frac{49}{64}$	19.45	44.85	70.25	95.65	121.04	146.44	171.84
$\frac{25}{32}$	19.84	45.24	70.64	96.04	121.44	146.84	172.24
$\frac{32}{64}$	20.24	45.64	71.04	96.44	121.84	147.24	172.64
$\frac{15}{16}$	20.64	46.04	71.44	96.84	122.24	147.63	173.03
$\frac{53}{64}$	21.03	46.43	71.83	97.23	122.63	148.03	173.43
$\frac{27}{32}$	21.43	46.83	72.23	97.63	123.03	148.43	173.83
$\frac{55}{64}$	21.83	47.23	72.63	98.03	123.43	148.83	174.22
$\frac{7}{8}$	22.22	47.62	73.02	98.42	123.82	149.22	174.62
$\frac{57}{64}$	22.62	48.02	73.42	98.82	124.22	149.62	175.02
$\frac{29}{32}$	23.02	48.42	73.82	99.22	124.62	150.02	175.42
$\frac{32}{64}$	23.42	48.81	74.21	99.61	125.01	150.41	175.81
$\frac{15}{16}$	23.81	49.21	74.61	100.01	125.41	150.81	176.21
$\frac{61}{64}$	24.21	49.61	75.01	100.41	125.81	151.21	176.61
$\frac{31}{32}$	24.61	50.01	75.4	100.8	126.2	151.6	177.
$\frac{63}{64}$	25	50.4	75.8	101.2	126.6	152.	177.4

1 Millimeter = .03937 inch.

Speed and Feed of Carbon Drills

The following tables of Speeds and Feeds are based upon average Shop Working Conditions. By following them, tool troubles will be reduced to a minimum.

Many of our customers are greatly exceeding these rules and are securing more capacity from the use of our CARBON DRILLS than shown in the tables. This, however, is due to their own local conditions.

Cast Iron and Mild Steel				Tool Steel			
Size	R. P. M.	Feed Per Rev.	Feed Per Min.	Size	R. P. M.	Feed Per Rev.	Feed Per Min.
1/16	2445	.002	4 5/7	1/16	1841	.001	1 2/7
1/8	1800	.003	6 4/2	1/8	1200	.002	3 2/16
3/16	1290	.0037	4 7/8	3/16	783	.0036	2 7/16
1/4	700	.005	3 1/2	1/4	600	.003	2
5/16	550	.005	2 3/4	5/16	430	.004	1 3/4
3/8	358	.005	1 5/1	3/8	254	.004	1 1/2
7/16	300	.006	1 5/4	7/16	225	.004	1 3/2
1/2	270	.006	1 5/8	1/2	199	.004	5 1/6
9/16	230	.007	1 3/9	9/16	188	.004	6 3/4
5/8	216	.007	1 3/4	5/8	150	.005	3 1/4
11/16	190	.008	1 3/3	11/16	142	.005	2 3/2
3/4	185	.008	1 3/4	3/4	120	.006	3 3/2
13/16	166	.009	1 3/4	13/16	118	.006	4 5/4
7/8	149	.010	1 3/1	7/8	100	.007	4 6/4
15/16	142	.010	1 6/4	15/16	98	.007	6 4/11
1	134	.010	1 1/3	1	96	.007	4 3/6
1 1/16	128	.010	1 9/2	1 1/16	94	.007	6 4/3
1 1/8	115	.011	1 1/4	1 1/8	82	.008	3 3/2
1 1/4	113	.011	1 1/5	1 1/4	81	.008	2 1/3
1 1/2	107	.011	1 1/4	1 1/2	80	.008	3 3/4
1 3/8	102	.011	1 1/8	1 3/8	78	.008	4 1/6
1 3/4	93	.012	1 7/6	1 3/4	70	.009	5 5/8
1 7/8	92	.012	1 7/4	1 7/8	69	.009	5 5/8
1 1/2	90	.012	1 5/4	1 1/2	66	.009	3 3/2
1 9/16	82	.013	1 7/16	1 9/16	64	.009	3 7/6
1 5/8	82	.013	1 7/16	1 5/8	62	.009	6 4/16
1 11/16	79	.013	1 1/2	1 11/16	60	.009	3 5/16
1 3/4	78	.013	1 3/4	1 3/4	55	.010	3 5/16
1 15/16	76	.013	1 5/3	1 15/16	55	.010	6 4/3
1 7/8	70	.014	1 5/3	1 7/8	53	.010	3 5/4
1 15/16	69	.014	1 5/3	1 15/16	51	.010	1 3/2
2	66	.014	1 5/9	2	50	.010	6 4/1
2 1/16	65	.014	1 5/4	2 1/16	49	.010	3 1/2
2 1/8	63	.014	1 3/2	2 1/8	47	.010	6 4/16
2 3/16	61	.014	1 5/5	2 3/16	43	.011	3 5/16
2 1/4	59	.014	1 5/4	2 1/4	42	.011	1 5/2
2 3/8	56	.014	1 5/3	2 3/8	41	.011	3 3/2
2 1/2	55	.014	1 4/9	2 1/2	40	.011	2 6/16
2 5/8	49	.015	1 6/4	2 5/8	38	.011	7/16
2 3/4	48	.015	1 4/1	2 3/4	36	.011	3 3/2
2 7/8	46	.015	1 3/1	2 7/8	34	.011	2 5/4
3	44	.015	1 2/1	3	33	.011	6 3/8
					33	.011	2 3/4
					32	.011	2 3/4

For Brass 75% faster.

Speed and Feed for "Diamond" and "Hercules" High Speed Twist Drills

These tables are exceeded by many of our customers to advantage, based naturally on their own local conditions. The "HERCULES" particularly works most successfully on much heavier feeds.

Cast Iron and Mild Steel				Tool Steel			
Size	R. P. M.	Feed Per Rev.	Feed Per Min.	Size	R. P. M.	Feed Per Rev.	Feed Per Min.
1/16	5519	.002	11	1/16	3057	.001	3
3/8	3000	.003	9	1/8	2500	.002	5
3/16	2100	.0035	7 7/16	3/16	1300	.0037	4 7/8
1/4	1400	.005	7	1/4	900	.004	3 3/5
5/8	1167	.006	7	5/16	700	.005	3 1/2
3/8	873	.007	6 7/64	3/8	509	.006	3 3/4
7/16	751	.008	6	7/16	417	.007	2 3/2
1/2	639	.009	5 3/4	1/2	382	.007	2 4/3
9/16	559	.010	5 13/32	9/16	349	.007	2 2/3
5/8	491	.011	5 13/32	5/8	316	.007	2 1/2
11/16	442	.012	5 13/32	11/16	274	.008	2 3/16
3/4	398	.013	5 11/64	3/4	268	.008	2 5/32
13/16	363	.014	5 7/64	13/16	237	.009	2 1/8
7/8	335	.015	5 3/32	7/8	225	.009	2 3/32
15/16	312	.016	4 63/64	15/16	200	.010	2
1	287	.017	4 7/8	1	196	.010	1 31/32
1 1/16	270	.018	4 55/64	1 1/16	193	.010	1 17/16
1 1/8	255	.019	4 27/32	1 1/8	173	.011	1 3/2
1 3/16	241	.020	4 23/32	1 3/16	169	.011	1 7/8
1 1/4	232	.020	4 4 1/4	1 1/4	153	.012	1 53/64
1 5/16	224	.020	4 3 3/4	1 5/16	146	.012	1 3/4
1 3/8	215	.020	4 1 9/4	1 3/8	140	.012	1 11/16
1 7/16	210	.020	4 1 3/4	1 7/16	133	.012	1 19/32
1 1/2	195	.020	3 23/32	1 1/2	127	.012	1 23/32
1 9/16	185	.020	3 6 1/2	1 9/16	122	.012	1 45/64
1 5/8	176	.020	3 3 3/4	1 5/8	117	.012	1 13/32
1 11/16	170	.020	3 3 1/2	1 11/16	113	.012	1 33/64
1 13/16	164	.020	3 9/32	1 13/16	109	.012	1 19/32
1 15/16	158	.020	3 3 1/2	1 15/16	105	.012	1 17/64
1 7/8	153	.020	3 1 1/16	1 7/8	103	.012	1 45/64
1 15/16	148	.020	2 3 1/32	1 15/16	99	.012	1 3 1/16
2	143	.020	2 5 3/4	2	96	.012	1 5 3/32
2 1/16	139	.020	2 25/32	2 1/16	92	.012	1 7 1/4
2 1/8	135	.020	2 45/64	2 1/8	90	.012	1 5 6/4
2 3/16	131	.020	2 5 3/8	2 3/16	87	.012	1 6 3/4
2 1/4	128	.020	2 9 1/16	2 1/4	85	.012	1 1 1/4
2 3/8	121	.020	2 27/8	2 3/8	80	.012	1 31/32
2 5/8	114	.020	2 6 3/4	2 5/8	77	.012	1 23/32
2 3/4	109	.020	2 11 1/4	2 3/4	73	.012	1 6 3/4
2 7/8	104	.020	2 6 3/4	2 7/8	69	.012	1 53/64
3	100	.020	2	3	66	.012	1 51/64
3	96	.020	1 59/64	3	64	.012	1 49/64

Table of Cutting Speeds

Feet Per Minute

Diameter Inches	30	35	40	45	50	55	60	65	70	75	80
	Revolutions Per Minute										
1/16	1834	2140	2445	2751	3057	3363	3668	3974	4280	4586	4891
1/8	917	1070	1222	1375	1528	1681	1834	1986	2139	2292	2445
3/16	611	713	815	917	1019	1121	1222	1325	1426	1529	1630
1/4	458	535	611	688	764	851	917	994	1070	1147	1222
5/16	367	428	489	550	611	672	733	794	856	917	978
3/8	306	357	408	458	509	560	611	662	713	764	815
7/16	262	306	349	393	437	481	524	568	611	656	699
1/2	229	268	306	344	382	420	459	497	535	573	611
9/16	204	238	272	306	340	373	407	441	475	509	543
5/8	184	214	245	276	306	337	367	398	428	459	489
11/16	167	194	222	249	273	300	333	360	389	416	444
3/4	153	178	203	229	254	279	306	330	357	381	408
13/16	142	166	190	213	237	261	284	308	332	356	379
7/8	131	153	175	196	219	241	262	285	306	329	349
15/16	122	142	163	183	204	224	244	265	285	305	326
1	115	134	153	172	191	210	229	258	267	287	306
1 1/16	108	126	144	162	180	197	215	233	251	269	287
1 1/8	102	119	136	153	170	187	204	221	238	255	272
1 3/16	96.6	113	129	145	161	177	193	209	225	242	258
1 1/4	91.8	107	123	137	153	168	183	199	214	230	245
1 5/16	87.3	102	116	131	146	160	175	189	204	218	233
1 3/8	83.3	97.2	111	125	139	153	167	180	195	208	222
1 7/16	79.5	92.8	106	119	133	146	159	172	186	199	212
1 1/2	76.3	89.2	102	115	127	140	153	165	178	191	204
1 9/16	73.2	85.4	97.6	110	122	134	146	159	171	183	195
1 5/8	70.5	82.2	93.9	106	117	129	141	152	165	176	188
1 11/16	67.8	79.1	90.4	102	113	124	136	147	158	170	181
1 3/4	65.5	76.4	87.3	98.2	109	120	131	142	153	164	175
1 13/16	63.3	73.9	84.4	95.0	106	116	127	137	148	158	169
1 7/8	61.1	71.3	81.5	91.9	102	112	122	133	143	153	163
1 15/16	59.1	69.0	78.8	88.7	98.5	108	118	128	138	148	158
2	57.3	66.9	76.4	86.0	95.5	105	115	124	134	143	153
2 1/8	54.0	63.0	72.0	81.0	90.0	99.0	108	117	126	135	144
2 1/4	51.0	59.4	68.0	76.2	85.5	93.5	102	111	119	128	136
2 3/8	48.3	56.4	64.4	72.5	80.5	88.6	96.6	105	113	121	129
2 1/2	45.8	53.5	61.2	68.8	76.3	84.2	91.7	99.5	107	114	122
2 5/8	43.5	50.8	58.0	65.3	72.5	79.8	87.0	94.3	102	109	116
2 3/4	41.7	48.6	55.6	62.5	69.6	76.5	83.4	90.4	97.2	104	111
2 7/8	39.6	46.2	52.8	59.4	66.0	72.6	79.2	85.8	92.4	99.0	106
3	38.2	44.6	51.0	57.3	63.7	69.9	76.4	82.6	89.1	95.3	102
3 1/4	35.1	41.0	46.8	52.7	58.5	64.4	70.2	76.1	81.9	87.8	93.6
3 1/2	32.7	38.2	43.6	49.1	54.5	60.0	65.5	70.8	76.4	81.8	87.4
3 3/4	30.6	35.7	40.8	45.9	51.0	56.1	61.2	66.3	71.4	76.5	81.6
4	28.7	33.4	38.2	43.0	47.8	52.6	57.3	61.2	66.9	71.7	76.4

Table of Cutting Speeds—Continued

Feet Per Minute

Diameter Inches	90	100	110	120	125	130	140	150	160	170	175
	Revolutions Per Minute										
1/16	5502	6114	6725	7337	7643	7948	8560	9171	9782	.....	.....
1/8	2750	3056	3362	3667	3820	3973	4278	4584	4890	5195	5348
3/16	1834	2038	2242	2446	2548	2649	2853	3057	3261	3465	5367
1/4	1376	1528	1681	1734	1910	1986	2139	2292	2445	2598	2674
5/16	1100	1222	1344	1466	1527	1589	1711	1833	1955	2077	2139
3/8	916	1018	1121	1222	1273	1323	1425	1527	1629	1731	1782
7/16	786	874	961	1049	1093	1136	1224	1311	1398	1486	1530
1/2	688	764	840	917	955	993	1070	1146	1222	1299	1337
9/16	611	679	747	813	869	883	951	1019	1086	1154	1188
5/8	552	612	673	736	765	796	857	918	979	1040	1071
11/16	500	555	611	666	692	722	770	833	888	944	971
3/4	458	508	559	610	635	661	711	762	813	864	889
13/16	427	474	521	569	593	616	664	711	758	806	830
7/8	392	438	482	526	548	569	613	657	701	745	767
15/16	366	407	448	488	509	529	570	611	651	692	712
1	344	382	420	458	478	497	535	573	611	649	669
1 1/16	323	359	395	431	449	467	503	539	579	610	628
1 1/8	306	340	374	408	425	442	476	510	544	578	595
1 3/16	290	322	354	386	403	419	451	483	515	547	564
1 1/4	274	306	337	367	383	398	428	459	490	520	536
1 5/16	262	291	320	349	351	378	407	437	466	495	509
1 3/8	250	278	306	334	348	361	389	417	445	472	487
1 7/16	239	265	292	318	331	345	371	398	424	451	464
1 1/2	230	254	279	305	318	330	356	381	406	432	445
1 9/16	220	244	268	293	305	317	342	366	390	415	427
1 5/8	212	234	257	281	293	304	328	351	374	398	410
1 11/16	203	226	249	271	283	294	316	339	362	384	396
1 3/4	196	218	240	262	273	283	305	327	349	371	382
1 13/16	190	211	232	253	264	274	295	317	338	359	369
1 7/8	184	204	224	244	255	265	286	306	326	347	357
1 15/16	177	197	217	236	246	256	276	296	315	335	345
2	172	191	210	229	239	248	267	287	306	325	334
2 1/8	162	180	198	216	225	234	252	270	288	306	315
2 1/4	153	170	187	204	213	221	238	255	272	289	298
2 3/8	145	161	177	193	201	209	225	242	258	274	282
2 1/2	138	153	168	184	191	199	213	230	245	260	268
2 5/8	131	145	160	174	181	189	203	218	232	247	254
2 3/4	125	139	153	167	174	181	195	209	222	236	242
2 7/8	119	132	145	158	165	172	185	198	211	224	231
3	114	127	140	152	159	165	178	191	203	216	222
3 1/4	105	117	129	140	146	152	164	176	188	199	205
3 1/2	98.1	109	120	131	136	142	153	164	174	186	191
3 3/4	91.8	102	112	122	128	133	143	153	163	175	179
4	86.0	95.6	105	115	120	124	134	143	153	163	167

Drill Grinding

TO secure the greatest efficiency and longest life of a drill, it is absolutely necessary that it be properly ground at the point. The cutting edges must be straight and of exactly the same length, as well as forming a proper and uniform angle with the axis of the drill, which is 59° for general use. (Fig. A.)

The importance of lip clearance or backing off of the cutting edges should not be overlooked. 12° at the periphery (Fig. B.) is the best angle for ordinary shop work. This angle should be uniformly increased toward the center of the drill, so that the line across the center shows an angle of about 125° to the cutting edges. (Fig. C.)

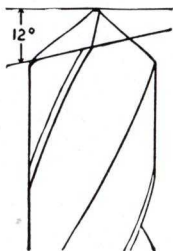


Fig. B
General Shop Use

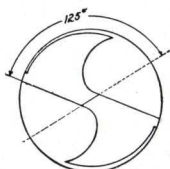


Fig. C

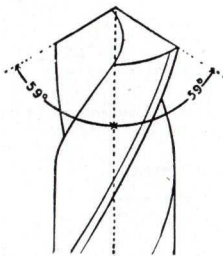


Fig. A
General Shop Use

To add strength to the drill, the thickness of the center web is increased toward the shank; therefore, as the drill becomes shorter through use, to cut free its center should be thinned to about $\frac{1}{8}$ of the total diameter of the drill on sizes up to $1\frac{1}{2}$ in., in diameter. Larger sizes, center web should be thinned to about one-twelfth of the total diameter of the drill. Great care should be taken to not injure the cutting edge and the operator should be careful to remove an equal amount of stock from each groove, so as to keep the point central.

Experience has shown better results are frequently obtained by varying the angle of the point and lip clearance to suit nature of material to be drilled. In soft material where a heavier feed is used the angle of lip clearance may be increased to 15° at the periphery, with a like increase in the

angle toward the center. More drills have been split up the center by insufficient angle of lip clearance near the center web than in any other way.

In drilling extremely hard material, where lighter feed is used, would suggest grinding the point to an angle of 68° (Fig. D), and the angle of lip clearance decreased to 9° at the

periphery (Fig. E). As a guard against drill troubles, the grinding of the points should be frequently examined.

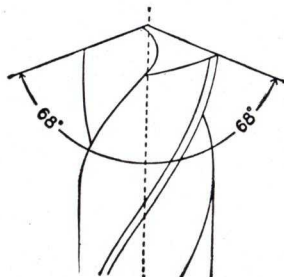


Fig. D. For Hard Material

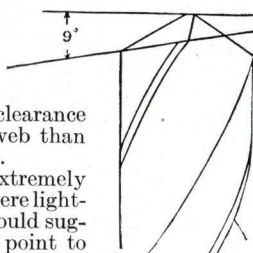


Fig. E
For Hard Mate.ia.

Perfect Drill Point

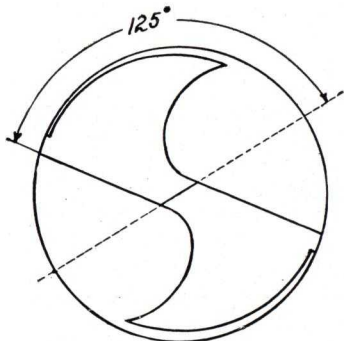
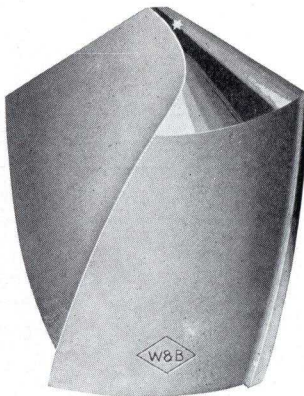


Diagram showing angle of Point



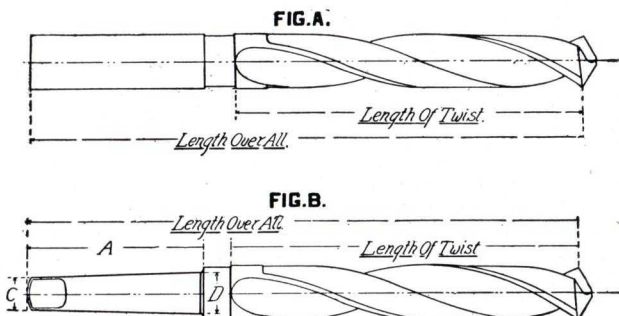
REAIZING the importance of a guide to inexperienced persons in grinding of drills with the proper point, we illustrate above a drill point correctly ground. Take any "W & B" drill as received from the factory as a model.

Care should be taken to preserve the angle of the line between the cutting edges, which should be about 125° , but never less than 120° . (See Diagram showing angle of point.) The preservation of the angle of this line is of the greatest importance. In our long experience we have seen more drills split from imperfect grinding at this point than from any other cause. As a proof of this we never have had a drill returned that split when used with the original factory grinding.

Important

High speed drills should be ground on a medium grain, soft grade dry wheel and must not be immersed in water afterward.

Directions for Ordering Special Drills



For Fractional Part of Inch, it is better to give decimal equivalent as we use micrometer calipers exclusively.

If Shank is standard give number. See page 54.

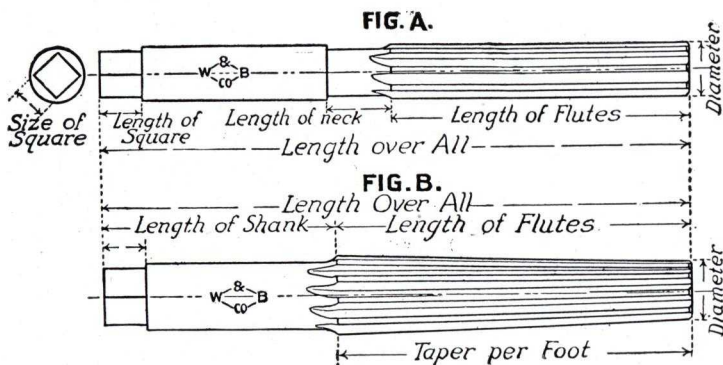
Regular Drills.—Always order by catalog number and state diameter.

Special Drills.—Refer to catalog number for general style of tool required, giving also the following information:

Special Straight Shank Drills.—Give diameter and length over all and length of twist. See Fig. A.

Special Taper Shank Drills.—Give diameter and length over all and length of twist. See Fig. B. If a special taper shank is required give diameter at C and D and length A. If the shank has a tang, give thickness and length. If no tang, so state on the order.

Directions for Ordering Special Reamers



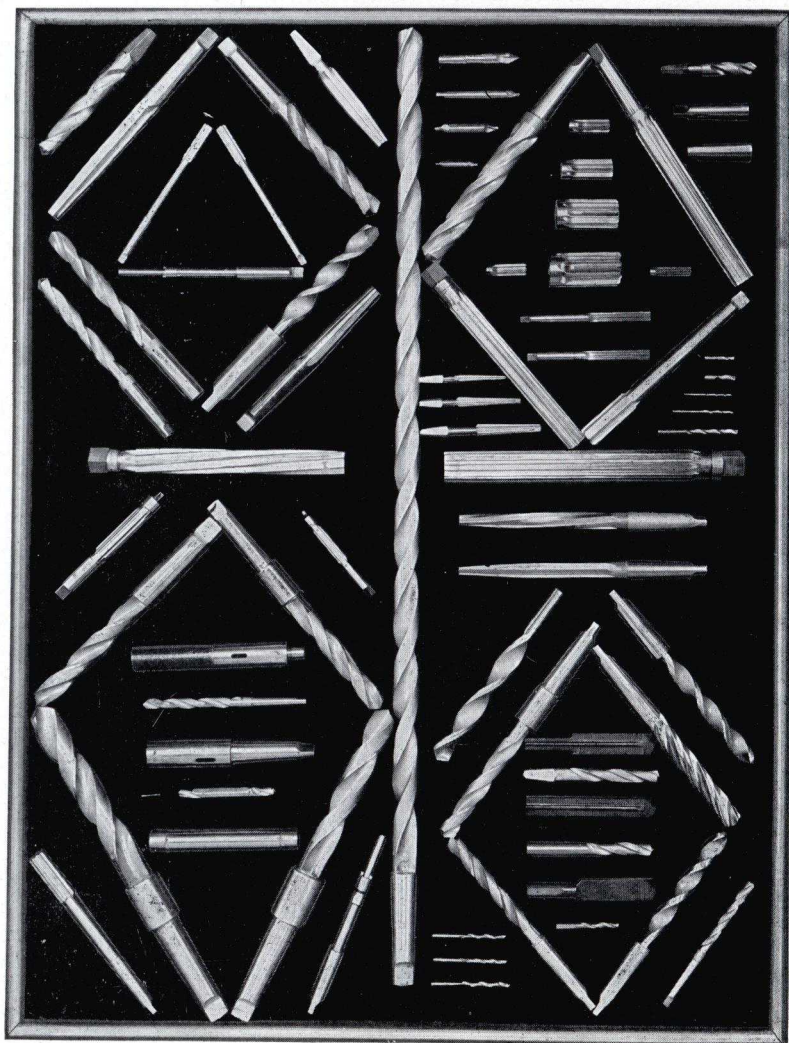
We will furnish Special Reamers to order and would request that reference be made to a number in this catalog for style required, in addition to the following information.

Hand Reamers—Diameter, length over all, length of flutes, see Figure "A."

Taper Reamers—Length over all, length of flutes, diameter at both ends of flutes or at one end and taper per foot, also style of shank or dimensions and sketch if Special Shank required. See Figure "B."

Shell Reamers—Diameter, length over all, length of flute, size of hole whether straight or taper, if latter give diameter at large and small ends.

ALWAYS STATE CLASS OF MATERIAL REAMER IS TO WORK IN



INDEX

DESCRIPTION	Carbon Steel No.	High Speed No.	Page No.
ARBORS			
For Shell Drills and Reamers, Taper Shank . . .	120T	.....	68
For Shell Drills and Reamers, Straight Shank . . .	120J	.....	68
Easy Starting, Taper Shank	125A	.....	69
Easy Starting, Straight Shank	125	.....	69
BITS			
Bell Hangers'	109C	.....	36
Bonding	105F	508	57
Flat Beaded . . . . .	.....	504	56
Flat, Round Slabbed Shanks . . . . .	.....	505	56
Flat, Combination Flat Beaded and Round Shanks . . . . .	.....	509	56
Electricians'	109C	.....	36
Machine, for Wood, Straight Shank	108	.....	35
Machine, for Wood, Prentice	108C	.....	34
Machine, for Wood, Taper Shank	108B	.....	35
Track, Flat . . . . .	.....	505 504 509	56
Track, Taper Square Shank	109E	507	58
Track, with Round Slabbed Shanks	110	506	57
Center Keys or Drifts	100C	.....	51
COUNTERSINKS			
Bit Stock Countersinks	109A	.....	33
Combined Drill and Countersink	114	414	33
Five Flute, Taper Shank	102F	402F	32
Five Flute, Straight Shank	104F	404F	32
Machine	109F	.....	32
	109G	.....	32
Three Lip High Speed, Ship Countersink . . . . .	.....	600	83
Decimal Equivalents . . . . .	.....	.....	96, 97 98, 99
Dimensions of Shanks on Regular Taper Shank Drills . . . . .	.....	.....	54
Dimensions of "W & B" Short Taper Shanks . . . . .	.....	.....	55
Directions for Ordering Special Drills . . . . .	.....	.....	108

For Numerical Index by List Numbers See Pages 117, 118, 119, 120

INDEX—Continued

DESCRIPTION	Carbon Steel No.	High Speed No.	Page No.
COUNTERSINKS—Continued			
Directions for Ordering Special Reamers.....			109
Drifts.....	100C		51
DRILL CASES			
Nos. 1-5.....			39
Drill Grinding.....			106
Drill List for Taps with U. S. Standard Threads.....			93
Drill List for Machine Screw Taps.....			94
Drill List for Pipe Taps.....			94, 95
Drill List for Taps with V Threads.....			93
DRILL SETS			
Nos. 1-12.....			40
Bit Stock, Nos. 13, 13A, 13B.....			38
Jewelers' No. 10.....			41
Jobbers' Metal, No. 5A and 5B.....			41
Wire, Metal, No. 8A.....			41
Wood Boring Brace, Nos. 14, 14A.....			38
Drill Sizes for Taps.....			93
DRILL STANDS			
Metal.....			41
Wood.....			41
DRILLS			
Bit Stock.....	109		37
Bit Stock Countersink.....	109A		33
Bit Stock, in sets, Nos. 13, 13A, 13B.....			38
Bits, Track.....			56
Blacksmiths'.....			21, 23
Bonding.....	105F	508	19
Center, Straight Shank.....	108A		20
Center, Straight Shank, Wire Gauge.....	108A		20
Coes.....	110	506	21
Combined Drill and Countersink.....	114	414	33
Farmer.....	105A	405A	42
Flat Beaded, Track.....		504	56
Flat, Round Slabbed Shanks.....		505	56

For Numerical Index by List Numbers See Pages 117, 118, 119, 120

INDEX—Continued

DESCRIPTION	Carbon Steel No.	High Speed No.	Page No.
DRILLS—Continued			
Flat, Combination Flat and Round Shank		509	56
Four Groove, Taper Shank	102C	402C	30
Four Groove, Straight Shank	104C	404C	31
“Hercules” Taper Shank		550	5, 6, 7
“Hercules” Short Body Car.		552	7, 81
Jewelers’ Set, No. 10			41
Jobbers’ Length	105	405	16
Jobbers’ Length Staybolt $\frac{3}{16}$ -inch	105	405	19
Jobbers’ Length, Millimeter Sizes	105E		48, 49
Letter Sizes	106	406	17
Left Hand, Straight Shank			43
Oil Tube, Taper Shank	D	4D	25
Oil Tube, Straight Shank	C	4C	26, 27
Prentice	111	411	23
Ratchet, Taper Square Shank	109E	507	24
Self Oiling, “W & B” Taper Shank	D	4D	25
Self Oiling, “W & B” Straight Shank	C	4C	26, 27
Sets			38, 40, 41
Silver and Deming	112	412	22
Single Twist, Taper Shank	108E		43
Single Twist, Straight Shank	108D		43
Single Twist, Jobbers’	108F		43
Single Twist, Jobbers’ Wire	108G		43
Speed of Carbon Drills			102
Staybolt	105	405	19
Straight Flute, Taper Shank	102A	402A	42
Straight Flute, Straight Shank	104A	404A	42
Straight Flute, Straight Shank, Jobbers’ Length	105A	405A	42
Straight Flute, Straight Shank, Wire Gauge	107A	407A	42
Straight Shank, Taper Shank Length	104	404	13, 14, 15
Straight Shank, Taper Length, Millimeter Sizes	104E		46, 47
Straight Shank, for Wood	113		34
Taper Shank, Regular	102	402	8–11
Taper Shank, “Hercules”		550	5, 6, 7
Taper Shank, Regular, Millimeter Sizes	102E		44, 45

INDEX—Continued

DESCRIPTION	Carbon Steel No.	High Speed No.	Page No.
DRILLS—Continued			
Taper Shank, with Shanks larger than regular	102	402	....
Tell-Tale Drills.	Special	Special	12
Three Groove, Taper Shank.	105	405	19
Three Groove, Straight Shank.	102B	402B	28
Three Lip, High Speed, Ship Countersink.	104B	404B	29
Track, with Round Slabbed Shank. ....	.....	600	83
Track, with Taper Square Shank.	110	506	57
Track.	109E	507	58
Two-Grooved Shank, Taper Length. ....	.....	.....	56
Two-Grooved Shank, Jobbers' Length.	104D	404D	20
Wire Gauge.	105D	405D	20
Wood Boring Brace.	107	407	18, 19
Wood Boring Brace, extra length.	109B	.....	36
Wood Boring Brace, in sets Nos. 14, 14A.	109C	.....	36
Fractional Sizes Expressed in Millimeters. ....	.....	.....	38
			100, 101
MANDRELS			89
PERFECT DRILL POINT			107
REAMERS			
Air Drill, Taper Shank.	120L	.....	82
Bit Stock Taper.	120B	.....	87
Bit Stock Taper, in sets. ....	.....	.....	87
Bridge Builders,' Square Shank.	120C	263A	84
Bridge Builders,' Taper Shank.	120L	.....	82
Bridge Builders,' Ratchet Shank.	127	.....	85
Bridge, Spiral Flute, "Hercules". ....	.....	270	80
Bridge, Taper Straight Flute, "Hercules". ....	.....	269	80
Car, Short Body "Hercules". ....	.....	271	81
Center, A and B.	120M	.....	85
Chucking—Fluted, Taper, Shank.	120E	262	70
Chucking—Fluted, Straight Shank.	120F	263	71
Chucking—Rose, Taper Shank.	120G	264	72
Chucking—Rose, Straight Shank.	120H	265	73
Dimensions of Socket Taper Reamers. ....	.....	.....	88

For Numerical Index by List Numbers See Pages 117, 118, 119, 120

INDEX—Continued

DESCRIPTION	Carbon Steel No.	High Speed No.	Page No.
REAMERS—Continued			
Expansion	121	.....	62
Expansion, Millimeter Sizes	121E	.....	92
Fluted Chucking, Taper Shank	120E	262	70
Fluted Chucking, Straight Shank	120F	263	71
Fluted Shell, Spiral Flute	117S	260S	67
Four Groove, Taper Shank	102C	402C	76
Four Groove, Straight Shank	104C	404C	77
Hand, Eccentric Flute	115	250	60
Hand, Eccentric Flute, Millimeter Sizes	115E	250E	90, 91
Hand, Spiral Flute	115S	250S	61
“Hercules,” Short Body Car .....	.....	271	81
“Hercules,” Taper Bridge Spiral Flute .....	.....	270	80
“Hercules,” Taper Bridge, Straight Flute .....	.....	269	80
“Hercules,” Taper Bridge, Millimeter Sizes .....	.....	269	92
Jobbers’ Taper Shank	116	251	63
Locomotive or Rod, Taper Shank	124	224	78
Locomotive or Rod, Square Shank	120A	220	79
Rod or Locomotive, Taper Shank	124	224	78
Rod or Locomotive, Square Shank	120A	220	79
Rose Chucking, Taper Shank	120G	264	72
Rose Chucking, Straight Shank	120H	265	73
Rose Shell	117A	261	64,65,66
Shell Fluted	117	260	64,65,66
Taper, Finishing	118	.....	88
Taper, Roughing	118A	.....	88
Taper, Bit Stock, in sets .....	.....	.....	87
Taper-pin	120D	.....	86
Taper-pin, in sets .....	.....	.....	86
Three Groove, Taper Shank	102B	402B	74
Three Groove, Straight Shank	104B	404B	75
SOCKETS AND SLEEVES			
Extension, Light Weight .....	.....	.....	83
Fitted	100A	.....	50
Rough	100	.....	50

For Numerical Index by List Numbers See Pages 117, 118, 119, 120

INDEX—Continued

DESCRIPTION	Carbon Steel No.	High Speed No.	Page No.
SOCKETS AND SLEEVES—Continued			
Shell or Sleeve.....	100B	.....	51
“W & B” Short Shank, Fitted.....	101A	.....	52
“W & B” Short Shank, Rough.....	101	.....	52
“W & B” Short Shank, Sleeve.....	101B	.....	53
Speed of Twist Drills—Carbon.....	.....	.....	102
Speed of Twist Drills—High Speed.....	.....	.....	103
Table of Cutting Speed.....	.....	.....	104, 105
U. S. Standard System of Bolts and Nuts...	.....	.....	95
TABLES AND GENERAL INFORMATION			
Cutting Speeds.....	.....	.....	104, 105
Decimal Equivalents.....	.....	.....	96,97,98 99
Dimensions of Shanks on Regular Taper			
Shank Drills.....	.....	.....	54
Dimensions of “W & B” Short Taper Shank.....	.....	.....	55
Directions for Ordering Special Drills.....	.....	.....	108
Directions for Ordering Special Reamers...	.....	.....	109
Drill Grinding.....	.....	.....	106, 107
Fractional Sizes Expressed in Millimeters..	.....	.....	100, 101
Speeds and Feed for Drills.....	.....	.....	102, 103
U. S. Standard System of Bolts and Nuts...	.....	.....	95

For Numerical Index by List Numbers See Pages 117, 118, 119, 120

Numerical Index

Drills and Reamers

No.	DESCRIPTION	Page
C	Self Oiling Drills, Straight Shank.....	26, 27
D	Self Oiling Drills, Taper Shank.....	25
10	Jewelers' Drill Set.....	41
13	Bit Stock Drill Sets.....	38
13A	Bit Stock Drill Sets.....	38
13B	Bit Stock Drill Sets.....	38
14	Wood Boring Brace Drill Sets.....	38
14A	Wood Boring Brace Drill Sets.....	38
50	Bit Stock Taper Reamer Sets.....	87
100	Socket for Drills, Rough.....	50
100A	Socket for Drills, Fitted.....	50
100B	Shell or Sleeve for Taper Shank Drills.....	51
100C	Center Key or Drifts.....	51
101	Short Shank Sockets, Rough.....	52
101A	Short Shank Sockets, Fitted.....	52
101B	Short Shank Sleeve.....	53
102	Taper Shank Drills, Regular.....	8-11
102	(Special) Taper Shank Drills, Shank Larger than Regular..	12
102A	Straight Flute Drills, Taper Shank.....	42
102B	Three Groove Reamers, Taper Shank.....	74
102B	Three Groove Drills, Taper Shank.....	28
102C	Four Groove Reamers, Taper Shank.....	76
102C	Four Groove Drills, Taper Shank.....	30
102E	Taper Shank Drills, Regular Millimeter Sizes.....	44, 45
102F	Five Flute Countersink, Taper Shank.....	32
104	Straight Shank Drills, Taper Shank Length.....	13-15
104A	Straight Flute Drills, Straight Shank, Taper Length.....	42
104B	Three Groove Reamers, Straight Shank.....	75
104B	Three Groove Drills, Straight Shank.....	29
104C	Four Groove Reamers, Straight Shank.....	77
104C	Four Groove Drills, Straight Shank.....	31
104D	Two Grooved Shank Drills, Taper Length.....	20
104E	Straight Shank Drills, Taper Length, Millimeter Sizes.....	46, 47
104F	Five Flute Countersink, Straight Shank.....	32
105	Straight Shank Drills, Jobbers' Length.....	16
105A	Farmers' Straight Flute Drills, Straight Shank.....	42
105B	Two Grooved Shank Drills, Jobbers' Length.....	20
105E	Jobbers' Length Drills, Millimeter Sizes.....	48, 49
105F	Bonding Drills.....	19

Numerical Index

Drills and Reamers—Continued

No.	DESCRIPTION	Page
106	Letter Size Drills	17
107	Wire Gauge Drills	18, 19
107A	Straight Flute Drills, Straight Shank, Wire Gauge	42
108	Machine Bit, For Wood, Straight Shank	35
108A	Center Drill, Straight Shank	20
108B	Machine Bit, for Wood, Taper Shank	35
108C	Machine Bit, for Wood, Prentice	34
108D	Single Twist Drills, Straight Shank	43
108E	Single Twist Drills, Taper Shank	43
108F	Single Twist Drills, Jobbers'	43
108G	Single Twist Drills, Jobbers' Wire	43
109	Bit Stock Drills	37
109A	Bit Stock Countersink	33
109B	Wood Boring Brace Drills	36
109C	Wood Boring Brace Drills, Extra Length	36
109E	Taper Square Shank Ratchet Drills	24
109F	Machine Countersink	32
109G	Machine Countersink	32
110	Coes Drills	21
111	Prentice Drills	23
112	Silver and Deming Drills	22
113	Straight Shank Drills for Wood	34
114	Combined Drill and Countersink	33
115	Hand Reamer, Eccentric Flute	60
115E	Hand Reamer, Eccentric Flute, Millimeter Sizes	90, 91
115S	Hand Reamer, Spiral Flute	61
116	Jobbers' Reamer, Taper Shank	63
117	Fluted Shell Reamers	64, 65, 66
117A	Rose Shell Reamers	64, 65, 66
117S	Fluted Shell Reamers, Spiral Flute	67
118	Taper Reamers, Finishing	88
118A	Taper Reamers, Roughing	88
120A	Locomotive or Rod Reamers, Square Shank	79
120B	Bit Stock Taper Reamers	87
120C	Bridge Builders' Reamers, Square Shank	84
120D	Taper-Pin Reamers	86
120E	Fluted Chucking Reamers, Taper Shank	70
120F	Fluted Chucking Reamers, Straight Shank	71
120G	Rose Chucking Reamers, Taper Shank	72

Numerical Index

Drills and Reamers—Continued

No.	DESCRIPTION	Page
120H	Rose Chucking Reamers, Straight Shank	73
120J	Arbor, Straight Shank, for Shell Drills and Reamers	68
120L	Taper Bridge Reamers	82
120M	Center Reamers A and B	85
120T	Arbor, Taper Shank, for Shell Drills and Reamers	68
121	Expansion Reamers	62
121E	Expansion Reamers, Millimeter Sizes	92
124	Locomotive or Rod Reamers, Taper Shank	78
125	Arbor, Easy Starting, Straight Shank	69
125A	Arbor, Easy Starting, Taper Shank	69
127	Bridge Builders' Reamers, Ratchet Shank	85
(High Speed)		
4C	Self Oiling Drills, Straight Shank	25
220	Locomotive or Rod Reamers, Square Shank	79
224	Locomotive or Rod Reamers, Taper Shank	78
250	Hand Reamer, Eccentric Flute	60
250E	Hand Reamer, Eccentric Flute, Millimeter Sizes	90, 91
250S	Hand Reamer, Spiral Flute	61
251	Jobbers' Reamers, Taper Shank	63
260	Fluted Shell Reamers	64, 65, 66
260S	Fluted Shell Reamers, Spiral Flute	67
261	Rose Shell Reamers	64, 65, 66
262	Fluted Chucking Reamers, Taper Shank	70
263	Fluted Chucking Reamers, Straight Shank	71
264	Rose Chucking Reamers, Taper Shank	72
265	Rose Chucking Reamers, Straight Shank	73
268	Taper Bridge Reamers	82
268A	Bridge Builders' Reamers, Square Shank	84
269	"Hercules" Taper Bridge Reamer, Straight Flute	80-92
270	"Hercules," Taper Bridge, Spiral Flute	80
271	"Hercules," Short Body Car Reamers	81
402	Taper Shank Drills, Regular	8-11
402 (Special)	Taper Shank Drills, Shank Larger Than Regular	12
402A	Straight Flute Drills, Taper Shank	42
402B	Three Groove Drills, Taper Shank	28
402B	Three Groove Reamers, Taper Shank	74
402C	Four Groove Drills, Taper Shank	30
402C	Four Groove Reamers, Taper Shank	76

Numerical Index

Drills and Reamers—Continued

No.	DESCRIPTION	Page
402F	Five Flute Countersink, Taper Shank	32
404	Straight Shank Drills Taper Shank Length.....	13, 14, 15
404A	Straight Flute Drills, Straight Shank.....	42
404B	Three Groove Drills, Straight Shank.....	29
404B	Three Groove Reamers, Straight Shank.....	75
404C	Four Groove Drills, Straight Shank.....	31
404C	Four Groove Reamers, Straight Shank.....	77
404D	Two Grooved Shank Drills, Taper Length.....	20
404F	Five Flute Countersink, Straight Shank.....	32
405	Drills, Jobbers' Length.....	16
405A	Farmers' Drills, Straight Flute, Straight Shank, Jobbers' Length.....	42
405D	Two Grooved Shank Drills, Jobbers' Length.....	20
406	Letter Size Drills.....	17
407	Wire Gauge Drills.....	18, 19
407A	Straight Flute Drills, Straight Shank, Wire Gauge.....	42
411	Prentice Drills.....	23
412	Silver and Deming Drills.....	22
414	Combined Drill and Countersink.....	33
501B	Track Bits, Ratchet Shanks.....	56
504	Flat Beaded Track Bits.....	56
505	Track Bits, Flat with Round Slabbed Shank.....	56
506	Track Bits with Round Slabbed Shank.....	57
507	Track Bits, Taper Square Shank.....	58
508	Bonding Bits.....	57
509	High Speed Track Bit, Flat, Combination Flat Beaded and Round Shank.....	56
550	"Hercules," Taper Shank Drill.....	5, 6, 7
552	"Hercules" Short Body Car Drills.....	7, 81
600	Three Lip, High Speed, Countersink.....	83



Memoranda



Memoranda



Memoranda



Memoranda



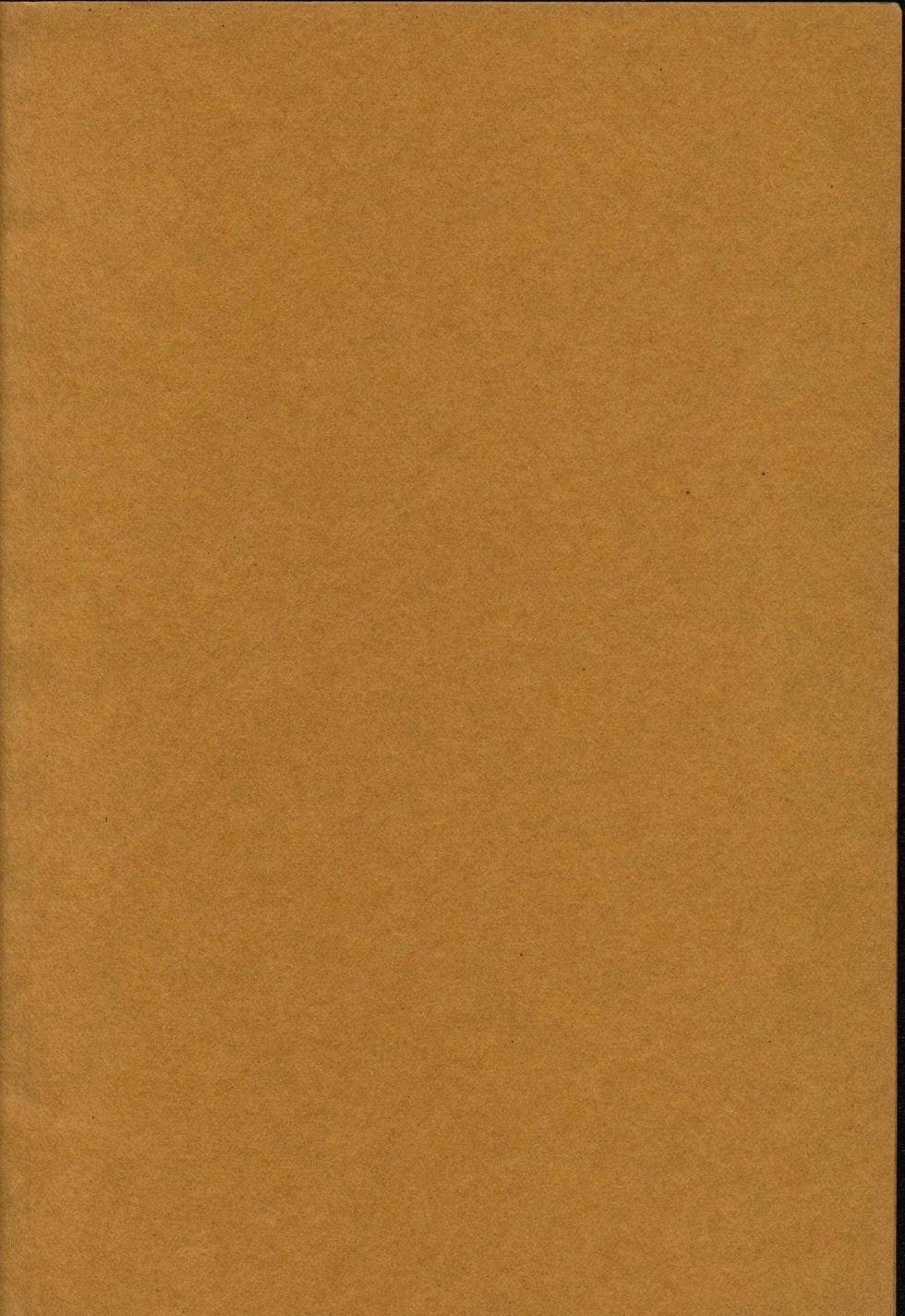
Memoranda

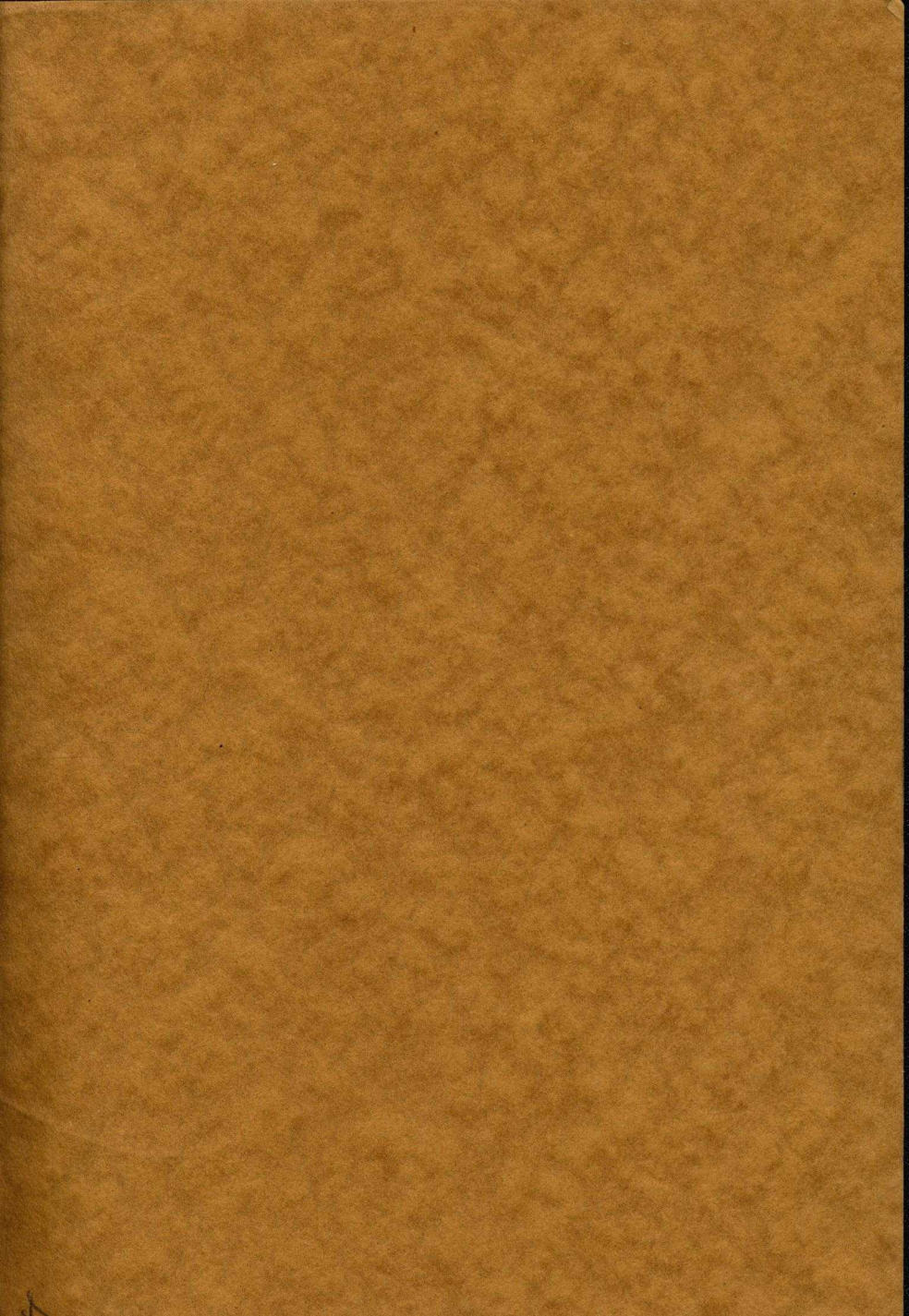


Memoranda



Memoranda





KILMER & SONS CO.,
FIRST & MONROE
SPOKANE, -- WASH.

KILMER & SONS CO.,
FIRST & MONROE
SPOKANE, -- WASH.